Crisis management's role and its effects on fire safety & security in five-star hotels in Malta

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Declaration of Authenticity

Declaration of Authenticity

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Crisis management's role and its effects on fire safety & security in five-star hotels in Malta

Declaration:

I hereby declare that this research study is based on the outcome of self-made research. I, as the authentic author, declare that this research study is my own composition, and has not been previously produced for any other qualification.

The research study was conducted under the supervision of Ms.Cristina Cristabelle Tabone

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Abstract

Hotels provide a safe accommodation for people as well as a workplace for many. Fires threaten the whole operation affecting the lives of all involved. Through crisis management however, hotels can implement plans to prepare for such eventualities. There is also a concern that, fire, being so destructive and deadly yet has no active legislation in Malta, although guidelines are available however these were formulated 18 years ago and have not evolved with time. In Malta. An issue also arises out of no legal action being able to be taken due to them being guidelines allowing contractors and hoteliers to implement what they deem right. Thus, the author of this paper questions how safe are five-star hotels in Malta in protecting staff and guests in the event of a fire. This paper investigates hotel managers' preparedness and their crisis management systems. The author conducts qualitative semi structured in-depth interviews to local five- star hotel managers for their views and various disciplines of fire expert personnel for their expertise in the subject. Through research search the researcher set out a hypothesis statement so that he can address his hypothesis question. Thus, exploring that if five-star hotels, fire safety and security frameworks, maintain the ideal requirements and imply legal concepts then their crisis management framework plans should reflect to be adequate and safe. From the findings the author could summarize that although five-star hotels are equipped and maintain a crisis plan, the execution of these plans needs to be more congruent to standards and recommendations. From the interviews performed it shows that fire and safety culture needs to be reinforced and rethought as the five-star Hotel Managers interviewed gave a general feel from data collected and their expressions that they are more than prepared. They even debate that in the event of any Fire and safety legislations, in future may be formulated, will not have much impact on their company as they claim to conform to foreign standards and do not see the need of being regulated. The researcher strongly believes through his conclusions that legislation can correct misconceptions and will install a new sense fire and safety culture that is regulated, uses modern technology equipment as protecting measures as well as up to date training skills for employees.

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Chapter 1 Introduction

More than ever before, five-star hotels have broadened their high-level facility services to meet the needs and expectations of people who have adopted to a different lifestyle in search of affordable or comparable high levels of luxury and comfort. Five-star hotels have provided their high level of amenities allowing both in house guests as well as the public to make use of spas and saunas, swimming pools, booking weekend breaks, organizing wedding reception services, booking rooms for conference groups and office meetings, gym facilities and offering outdoor entertainment amongst others. These modern additions, functionalities and branching out of services attract a larger population and a high influx of tourists which has increased through time.

However, this high increase in demand has now also increased the exposure to fire hazards and safety concerns as hotels expand in structure and in adapting to multifunctional rooms. To date, there are no laws regarding fire safety and companies are free to implement what they deem right or what external fire experts suggest. There seems to be a lack of priority culturally for fire and safety regulations or law enforcements to be made mandatory in spite of the high risk and impact on human lives and economy a fire can cause.

Thus, the researchers aim was to explore five-star hotel fire and safety crisis management plans and their preparedness in the event of fire. Thus, the objectives to reach the aim of this study are as follows:

- Research similar local/foreign studies using reliable search engines by using key words, such as five-star hotels, crisis management, fire and safety, tourism, fire preparedness, roles and responsibilities, and legislation.
- Develop a hypothesis statement that will address the aim of the study.
- Conduct one to one in- depth interviews with local fire experts of different sections and ranks for further knowledge.
- Conduct one to one in-depth interviews to explore five-star hotel managers' views.
- Devise recommendations that address gaps relating to fire and safety in local five-star hotels.

The next chapter of this paper will give an overview of foreign and local literature available and related to the topic. The researcher will also review and attempt to outline some important guidelines and foreign legislations as well as relate to local articles written by fire experts.

Chapter 2 Literature Review

2.1 Introduction

This chapter researches local and foreign secondary sources and journals that relate to 5 Star Hotel Fire Safety crisis management's adapted role and effectiveness. The Review also delves into the current Maltese legislation with regards to fire safety in hotels and practices that are currently in place. However, due to sparse information regarding the topic, a local author/authority on the subject/topic was identified and given importance throughout this chapter so as to present a clear way forward on the enactment of a fire safety law.

2.2 Rationale

Boylan & Greenawalt (2021) reaffirm the obvious by stating that vacations are a special time for many individuals and families. Tourists explore new places when booking their holidays, in search of finding experiences that enables memorabilia and relaxation. The authors argue that travel can be a positive experience however, this can quickly turn into a crisis, possibly a near-death experience.

The hospitality industry has always been seen as an industry with substantial number of professionals of different disciplines working together for the guest. Locally, most five-star hotels are open 24 hours/7 days a week with a wide variety of services aiming at maximising the guest experience which in return need to be protected.

2.3 Tourism in Malta

Katarzyna & Sharon (2019) remark that as a small island nation, Malta relies heavily on tourism for its economic value. The authors continue to state that Malta's tourism industry began in the 1950's, when Malta was colonised by the British with whom strong ties were developed during both World Wars.

In a Quaterly review of The Central Bank of Malta in 2018, Attard (2018) remarks that environmental, physical and social factors contribute to the decline in tourism as an area gets less attractive and overused. To differ from this decline, rejuvenation is needed. Consequently,

low-cost airlines flying to Malta as from 2006 gave a rejuvenation resulting in unprecedented numbers combined with increases in accommodation to handle demand.

The COVID-19 Pandemic was one the most recent events to heavily affect the hospitality industry (Watson, 2021). This is evident in the reports of the Maltese National Statistics Office, where a constant growth of inbound tourists to Malta, up until 2019, saw 2,771,888 passengers enter from the airport and seaport. In 2020, a sudden spread in the virus and drastic restrictions coming into effect, not only in Malta but also on a global scale, saw the number of inbound passengers fall to 658,513 (NSO, 2022). To manage the changes that tourism brings, four priorities have been drafted with regards to policy; "*Modernising Tourism Regulations, Sharing Intelligence, Developing a Classification System, and Investment in digital innovation."* (OECD, iLibrary, 2020). When developing policies, especially in tourism, the policy makers need to cogitate many of the impacts on all that are involved (Attard, 2018).

By Modernising the Tourism Regulations, Malta can ensure that it stimulates growth in the sector, avoiding any damage to the industry. Sharing of intelligence between shareholders and entities both on a local and foreign scale helps to give an understanding of any 'developments, issues, threats and opportunities' that arise. The investment in technology is vital for Malta to enhance the experience of visitors. Initiatives will enable the Maltese tourism industry to implement methods and means to communicate with the guest through augmented and virtual reality (OECD, iLibrary, 2020).

2.4 Framework of Fire Safety Legislation

The financial burden that these business face after a fire could be tremendous even resulting in closure from loss of valuable property and assets (Virtual College, 2019) hence, large industrial businesses such as hotels could face severe consequences. Unfortunately, the materialistic aspect is not the only impact that these fires leave, as people may suffer injuries and accidents may even be fatal. Accidents which could have been avoided all together and others caused by arson remain a growing concern.

The report Fire Safety Legislation in Malta (Coleiro, 2016) makes reference to the Civil Protection Department as a government entity which is regulated by Chapter 411 in the Laws of Malta. The author continues to argue that the fire service has no specification on Fire Safety or Fire service operations however it must respond to emergencies and make certain the public

is knowledgeable on fire safety. Coleiro (2016) indicates that the only laws that relate to fire are in the following legal notices which fragment the fire safety laws in a way that are not clear and are thus vague with statements such as 'must be adequate'. Reference is made to the following legal Acts: L.N 424 of 2002 (Occupational Health and Safety Authority Act), SL. 409.15 (Catering Establishment Regulations), SL. 10.40 (Maintenance at Good order at Places of Entertainment). and LN 351 of 2012 (Malta Travel and Tourism Act) (Coleiro, 2016) Furthermore L.N. 162 of 2016 (DEVELOPMENT PLANNING ACT) also has parts of the legislation mentioning fire safety in the developing stage. These Legislations and Legal Notices are attached in Appendix 7.5 of this dissertation.

When gathering secondary information for the literature review, the 'Design guidelines on fire safety for buildings in Malta' (Building Construction Industry Department 2004) drawn up by the Building Construction Industry Department was reviewed for reference. The authors of the book comment particularly on the misconception that since masonry construction is highly used in Malta. There is low combustibility and a very small chance of a fire. In contrast, statistics showed that over the span of three years, the fire service attended 538 fires in households and 390 fires on Commercial Premises (2004). These commercial premises include five-star hotels which are frequented by many people thus posing high risks. Although the fires did not cause major injuries, a large financial burden was taken on to rectify the damage by the businesses. The progression of construction engineering, or thereof the lack of, is becoming an ever-greater concern as techniques and designs advance along with new materials and necessities, changing the way one may view fire risks. In Malta, fire safety is not given the importance that it deserves which is supported by the lack of standard when compared to the rest of the European Union (Building Construction Industry Department, 2004).

The Building Construction Industry Department has commented that the work on fire safety legislation seems to have stopped as virtually no new notice or amendments have been approved. Pressure from Foreign entities such as Tour operators and large hotel chain companies have had a drastic effect on the industry. It is only due to this stakeholder pressure including customers' demands that the awareness of Fire Safety has improved, mainly within 4 and 5-star Premises (Building Construction Industry Department, 2004).

2.5 British Influence on the Maltese System

Within the United Kingdom, health and safety is given the utmost importance. No matter the size of the operation or how fast-paced the environment is, all must give importance to adhere to the health and safety of persons within a building. With the strict, invasive regulations and legislation imposed, a positive outcome is the common knowledge acquired by everyone in recognizing signage and equipment within workplaces and areas (Virtual College, 2019).

In 2005, the Regulatory Reform (Fire Safety) Order was scripted to help standardise fire safety regulation for all enterprises and businesses. This reform was built upon the Act in 2001 and has been further updated, most recently in 2017 (Chief Fire Officers Association, 2006). According to the Dorset and Wiltshire Fire Service, the FSO (Fire Safety Order) is a combination of all the laws relating to fire safety in one legislation. This was done to help facilitate the process of applying it to businesses. The FSO has two main goals. Firstly, it intends to focus on a sole person in the role, whose responsibility is a must to take steps listed in the legislation to reduce the risk that fire can affect persons lives and protecting structures, by always enabling a clear escape route. Secondly, it focuses on the role of responsibility assigned to a specific person to create a customized and sufficient risk assessment of the property in which people are exposed to hazards and risks. As a result of the risk assessment, fire precautions should be identified in detail to mitigate as much as possible the consequences (Dorset & Wiltshire Fire Service, 2022).

The Civil Protection Department of Malta has based its operating procedures and its policies on the United Kingdom deriving from historical influence on the Maltese scenario of regulating safety and security in buildings including hotels. As discussed, the UK had a complete update of their laws in 2005 with the FSO (Fire Safety Order) and this is constantly updated to adjust to modern techniques and buildings. The FSO is not the body which imposes fire safety law but is a guide to the British Standards Institute (BSI). The BSI was delegated the job of updating and making sure the guidelines meet the latest issues, in doing so they are not bound to resorting to Parliament for every small change they want to incur (Coleiro, 2016).

2.6 Fire Safety Standards

Coleiro explains that there are two main standards from the BSI which are referenced in the FSO that apply to hotels; BS9999 of 2008 and Approved Document B, Buildings other than

dwelling houses. Although these standards account for most properties, complex and multi occupancy buildings would need a Fire Engineer to draft a plan which would be custom to the building (Coleiro, 2016). Knight, Brinson, & Milne (2017) remark that the fire safety standards have improved fire safety in terms of lowering fire deaths, fire injuries, firefighter deaths and fires themselves and that is brought about by legislation changes like implementation of fire rated furniture and an increased number of smoke detectors. The authors continue to state that standards that combine precautionary measures have contributed to a large part in terms of the safety of people.

The BSI contains two standards which directly influence hotels which are BS9999 and 7974. BS7974 is essentially the framework of which fire safety engineering is based. Within its remit, standards are given on the design of the building, providing guidance and recommendations. In a report given by the BSI, the BS 9999 effects how a building is designed for fire safety effecting both designers and also owners of the buildings. It is vital to keep up with the standards when designing, re-designing with the purpose of extending and/or allocating and re-purposing the use of the building. On top of that, the standards determine that firefighters will have accessibility to the building together with sufficient equipment which is present in the building. With robust analysis and providing the reader of that standard with a scientific analysis in terms of innovation from a governmental point of view, it ensures innovation whilst the building remains safe (British Standards Institution, 2017).

The authors continue to emphasise in their report that fire safety standards are important because of the lack of prioritisation of standards. Consequently, it is an owner of the premises that must comply and they are responsible for the premises being in line with health and safety legislation. This in return will have a snowball effect from owner to owner. Having consistency of standards therefore plays a big part in guiding the practitioner, whether it is a safety engineer, an appointed responsible person or an owner. BS 9999 is an accumulation of standards, BS 9990 and 9991, sustaining the fire safety code of practice for the design management and use of buildings (Knight, et al., 2017).

The authors highlight that architects and engineers have to include designated fire safety into a building following BS9999 which brings together all the different measures that establish fire safety. BS 9999 offers guidance on new and existing buildings in the management of fire safety through the entire lifecycle of the building (Knight, et al., 2017). BS9999 is continually being revised to reflect a new evolution of technology and the management section that were not

available when it was first published in 2008. BS 9999 carries importance due to its alignment with government strategies and government legislation by the “approved document B and also fire safety order” (Knight, et al., 2017).

Coleiro states that a requirement of the European Union is that fire safety provisions and enforcement is done by the local Fire Service or Civil Protection. The fire service takes into consideration the fire operations that could take place in a building. For example, an escape stairwell needs to serve two purposes essentially, to lead people out of a building in the most direct way possible and to allow firefighters to progress into a building to reach the affected areas. Another provision is Dry Risers or Wet Risers which do not impact the public however, they enable the fire service to quickly have access to water on fire floors (Coleiro, 2016). The Health and Safety Department has the responsibility of safeguarding the health and safety of people and the employees of an establishment with measures, such as prevention, first aid firefighting and safe evacuation of all personnel, supervised by an officer in charge.

2.7 Fire Experts in Building Reviews

Currently, the Civil Protection Department (CPD) is tasked with carrying out Planning Authority application reviews. Coleiro (2016) states that CPD review the building plans and upon meeting basic fire safety requirements, the CPD approve the application. The BS9999 is applied to help them achieve this however, with a lack of legislation it is possible for owners and architects to challenge the CPD statement helping them save money on implementations they deem useless (Coleiro, 2016).

A lack of recognition of fire engineers and fire consultants contributes to the problem of inaccurate building plans. Coleiro (2016) continues to observe that architects, electricians and mechanical engineers can approve plans without taking into consideration fire measures. Progressively, fire engineers should be consulted for their scientific expertise measuring the risk of a building. Fire engineers are mainly involved in High Rise buildings or Multiple occupancy such as hotels which are complex. While a fire safety consultant is knowledgeable about fire in buildings however, the role cannot substitute a fire engineer. This difference in roles is not clearly stated in the Buildings Regulation Act of 2011 where it refers to an unspecific consultant role (Coleiro, 2016).

2.8 Financial Burden

As a known fact, costs affect any industry however, fire safety measures cannot be compromised. When comparing two standards, that of the American NFPA and BS9999, both show advanced and up-to-date measures. As Coleiro (2016) noted, when applying such standards to Malta, the American NFPA standard is seen as not feasible for Maltese construction. BS9999 is more adaptable to local structures and thus, is currently being used by the CPD when carrying out their assessments. However, price dictates engineers' decision to opt for the American NFPA standard (€30) which costs less than the British BS9999 (€780). There is no local law that foresees this decision (Coleiro, 2016).

2.9 Hotel Fire Safety and Security

A fire within a hotel presents a major risk, to people within the building, the property itself and the business' ability to continue post crisis. As Ihsan (2013) writes in his report, fire safety standards have been drawn up and implemented in most countries with personal safety being regulated by local laws and requirements. The protection of assets has been guided by the insurance companies through their instructions and advice. Hotels have offered approximately 13.9 million beds in 2006, which transpires to 1.75billion nights available. This vast quantity of availability requires large amounts of staff which amounted to 1.8 million people being employed as a result (Ihsan, 2013). Consequently in 2020, 8.2 million people were working within the Hospitality sector in Europe, contributing to, on average, 4% of the total labour workforce for each of the 27 EU member states (Destatis Statistisches Bundesamt, 2021).

Ihsan remarks that fire safety procedures aim to serve and achieve certain objectives. In general, the four principles are to save life, protect property, continue business operation, and protect the environment and heritage. The objectives vary depending on the physical structure and capability of the building, height and occupancy. However, the main factor that must be taken into consideration is the severity or potential gravity of a fire. The author gives high importance to understand the mechanism of Fire and how it can be controlled through building design (Ihsan, 2013).

Fire Safety equipment varies vastly in hotels due to the different layouts and size of buildings. High-rise hotels are protected by sprinkler systems however only 1 in 4 have them installed whilst in all other hotels only 50% have installed such a system. As a result, by company

policies of some owners, retrofitting of sprinkler systems must be done within older buildings to keep the safety standard however, this is only a minority. False alarms are also an issue, with some hotels installing state of the art systems which bring this issue to nil. On the other hand, some hotels tend to tolerate the problem which leads to serious consequences such as guests' ignorance of the alarm or worse, staff members becoming complacent. In the US, it is noted that fire protection varies in different areas of the country. This depends heavily on the official's efforts to enforce laws and update legislation (Ihsan, 2013).

2.10 An Overview of the European Fire Safety Guidelines

In the European Guidelines presented methodology (2010), parameters are set as a voluntary tool for different phases of operation for any hotelier to apply. These specifically revolve around fire safety and how different systems can be introduced. In cases where the hotel is not able to financially support the necessary implementations one could look at spreading the costs out over a couple of years but not ignoring the recommendation altogether. If for some reason the hotel, through a fire risk assessment is found to be of an immediate danger, then the continued operation could be stopped, be it in part of the hotel or overall. These all relay back to the fact that the responsible person should never forget that his role will make him/her accountable for the safety of guest and staff on the premises. The guidelines take into consideration:

I. **Site and layout of the building**: The hotel should always be accessible for first responders to arrive as quickly as possible and uninterrupted, this will aid in evacuation and controlling the situation. The access to systems such as water inlets should also be easily accessible to promote internal firefighting. Protection of adjacent buildings by physical separation or fire-resistant partitioning.
II. **Construction and Interior finishes**: This include the structural resistance to fire to the degree that occupants can evacuate safely as well as for fire service operations to take place. Compartmentation of the building using systems such as fire sprinklers or smoke control and physical barriers such as fire doors, fire resistant walls and partitions. Compartmentation should protect the escape routes and areas in which smoke could travel easily to other parts of the hotel.
III. **Escape Routes:** Fire Safety Engineers should determine the size and distance of fire escapes. These should provide a quick egress out of the building. Provisions for persons with disabilities must also be taken into consideration where the person could preferably

egress on his/her own. If this is not possible then a refuge area should be made easily accessible with effective communication to get assistance. Lighting should be installed to help illuminate the escape routes together with escape signs. These should be clearly positioned to avoid confusion and visibility, even if light fails, by use of photoluminescent signage. All guests should be aware of the emergency escape plan from their bedrooms and fire alarm call points.

IV. **Basement Car parking areas:** A fire risk assessment should be able to identify the amount of escape routes needed for the parking area. Stairwells and lifts should not allow smoke to travel up into the building, protection of vital systems such as electrical systems from fires in underground carparks by separation or fire resistance and lack of complexity to aid escape. Materials should be provided to deal with hazardous fuel spills from vehicles and a means of smoke control within the garage.

V. **Special requirements for High Rise Buildings**: The fire resistance rating of the building should be increased to prolong time for evacuations and fire brigade operations, compartmentation should be implemented more to control rapid spread, fully automated sprinklers, access for firefighters to be able to reach top floors quickly with the use of fire rated lifts, more frequented protected lobbies to allow a command centre for firefighting operations inside the building, fixed water supply or wet riser systems, phased evacuation to help control the amount of people using the escape routes at any one time and escape routes which lead directly to open-air away from the building.

VI. **Special requirement for protected buildings:** A special fire risk assessment should take place in case of historical buildings which are being used as hotels to protect the occupants and building but also to help identify challenges which may cause issues during operations.

VII. **Protection of systems vital for the hotels functioning:** Air handling systems must be protected from spreading smoke and fire through the systems to other parts of the hotel through dampers or by complete shutdown of the system, a 'Cause and Effect' matrix should be created to help identify how the system would work during a fire, the system should also be working with the fire panel to be able to control it instantly. Inlets of air should be clear of any potential contaminants and outflows should be far apart. Gas or LPG pipelines should be protected to reduce the risk of ignition, electrical installations should be designed in which a backup is always available for emergency power, the emergency shut off should be easily available to allow the fire brigade to work efficiently and safely.

VIII. **Early detection systems**: Automatic detection through a series of sensors must be implemented, the sensors should be appropriately placed to prevent false alarms as much

as possible. To help with this, different types of sensors can be installed, such as gas detection sensors, carbon monoxide sensors, heat sensors and smoke sensors. The whole of the building should be monitored through these sensors to have an effective system that will detect at the very early stages of a fire.

IX. **Smoke management systems:** these could include smoke doors that provide a physical barrier or through ventilation by opening and closing certain doors. The mechanical introduction of ventilation is also available to protect stair wells by pressurizing them slightly preventing smoke from entering the shaft. Smoke being such an underrated danger can deprive humans of oxygen and blind there exit thus impeding the protection of life.

X. **Manual Firefighting Equipment:** All equipment that is installed in the hotel needs to be shown to members of staff on how to use the equipment and formal training given. First Aid Firefighting equipment is to be used in the event of a small fire where staff can quickly and effectively tackle a fire before it gets worse. Equipment such as fire extinguishers, hose reels, fire blankets and sandboxes. The extent of equipment depends on the support available from the fire service as well as the risk imposed. All First Aid Firefighting equipment should be easily accessible and clearly marked to aid during an emergency. Hotels which are isolated to a certain extent might benefit also from a vehicle containing fire equipment and first aid medical supplies. For Fire Service Use only equipment such as hydrants, dry/wet risers, firefighters lifts, fire ventilation ducts and booster pumps can be installed to ease access for firefighters and help bring the situation under control faster.

XI. **Sprinkler Systems-** these are generally automatic with different types of activation creating a water mist. This system provides a high containment area which gives time for evacuation and for firefighters to go in and deal with the incident. Sprinklers can also reduce the cost of compartmentation and other structural designs due to their capabilities of controlling a blaze. Newer designs also incorporate a more effective mist system or water spray.

XII. **Special Risk Areas:** As identified in a fire risk assessment, high risk areas such as the kitchen must include several shut offs for electricity/gas, a smoke ventilation system, automatic protection systems for fixed hazards such as fryers or gas cooking tops, and manual firefighting equipment. Other areas in the hotel that need to be heavily protected are the back-up generators which provide essential power to certain areas only, fuel storage so as not to cause a large incident, all essential shut offs or buttons which prevent a major incident, dumb waiters which could help fire and smoke travel from one floor to another

and finally underground carparks which should be protected by systems mentioned above to allow evacuations and fire service operations (HOTREC, 2010).

2.11 Crisis Management

It is a well-known fact that within an establishment, whether provoked by man or caused naturally, a crisis can occur at any time and sometimes without warning. Any management with huge challenges needs to plan for a crisis (Fuller, 2015). A management plan that draws out strategies will reinforce the front-line defence mechanism of its company.

Literature dating back from the 80's, explored varies crisis management frameworks. However, few studies explored actual outcomes when crisis management plans and strategies were adapted. (Meyers & Holusha, 1986) had described crisis as inevitable with businesses' survivability, asserting that crisis management has one main outcome, that is, to tackle and help issues to return to normality with immediate effect. Nevertheless, in more recent articles and research studies authors tend to agree that it not only disrupts normality but also can damage a company's reputation (Gottchalk, 2002), (Hugiru, 2020). (Boin, et al., 2018) when defining crisis, they also refer to it as an unexpected activity that needs preparation strategies to cover as much eventualities as possible rendering an effective plan as, superior to others.

Two leading authors have contributed to Crisis Management by creating two Crisis Management theories, the GHP Model and the Butterfly Theory. The GHP Model bases itself on four phases:

I. **Issue Management** where the environment is assessed to identify issues that could instigate a crisis. This helps to form a risk image.
II. **Planning-Prevention** which comprises of setting up policies for a proactive stance, analysing methods of responding to the risks from the outcome of phase one and preparing specific or general emergency plans.
III. **The Crisis** which from the perspective of the authors this part should be the organizations analysis of the response to the crisis, anticipation of negative publicity and targeting the message from the hotel to the targeted audience.
IV. **Post-Crisis** where the organisation monitors the crisis until return to near normality and evaluation of how the plan worked (Gonzalez-Herrero & Pratt, 1995).

In the article written by Strother (2016), he criticises stage 3 of the GHP Model, stating that the organization should focus on dealing with the incident rather than evaluating what went wrong and their response. In his paper, he refers to the Butterfly Method which is built upon the GHP model but with a more efficient and effective model of crisis management by looking out for and preparing a response to very low probability events which have great consequences. This is in reference to the 'black swan theory' where small events have the potential to causes major incidents. Unlike black swan events which are unpredictable, management should be aware as much as possible and include preparation of small events in their crisis management plans (Strother, 2016).

Hugiru (2020) confirms that managers have immersed themselves into planning ahead as there is now evidence in research, that those who have prioritized crisis management plans and have extensive preventive measures in place are able to manage crisis more efficiently. Upon researching various crisis management strategies and business continuity, Karem's (2018) study identifies different types of crisis management strategies leading to a faster recovery of the business, some of which fall into category of prevention, confrontation, cooperation and contaminate strategies. Hugiru (2020) also agrees and refers to other authors findings which claim that a good relationship with suppliers, customers, government and competitors reduces the impact of a crisis.

(HOTREC, 2010) argues that it is not enough to have the best building construction and design or to have the top fire safety systems in place, as fire crisis management can only be efficient if all stakeholders are involved. Management within hotels in simple terms is made up of a general manager, who leads, with the managers of the separate departments reporting to him/her. The responsibility for safety and security is therefore not the sole job of one person but it is referred to all the heads of departments. By doing so, a crisis management team is created for the internal stakeholders. Furthermore, Hartmann emphasis that a crisis management plan should have a strategy that will help to achieve demands and expectations of all involved (Hartmann, 2011). Management carry the role of making sure the facilities of a hotel are safe for all persons. The main objectives to be able to do this are the mitigation of a fire establishing itself, the control of smoke and fire, a safe and quick evacuation of the premises and the accessibility of fire services to work quickly and unhampered (Hassanain, 2009).

2.11.1 Crisis Management VS Organizational Culture

Abo-Murad et al., (2019), when studying organizational culture on crisis management in hotel industries, concluded that the turnover culture negatively affected crisis management practises in the hotel industry and highly suggests an integrated crisis management model which eliminates organizational barriers. Moreover, the authors explore the culture that arises from internal and external stakeholders' behaviour, which might have an impact on fire safety. Therefore Abo-Murad argues that staff should be prepared proactively mentally and physically highlighting the dangers involved, when such a crisis strikes. It is imperative that a manager should understand the building and its services to be able to develop and activate a crisis management plan/ emergency response without delay. Through this, the hotel can avoid severe consequences such as loss of life or property (Abo-Murad, et al., 2019).

Moreover, Paraskevas (2006) points at redefining crisis management plans and mentions crisis management teams. The discussion focuses on the concept of complexity which involves and relates to the interactions between crisis response and the evolution of the organization. Paraskevas (2006) analytically narrates a hotel experience which had invested heavily in the development of crisis management plans. Five months after a fire evacuation drill an incident occurred, bigger than planned but still the management where confident of the plan. To their shock it was not expected that people would react in the way they did, both employees and guests not being able to cope and others reacting negatively to the incident. A post incident analysis of the plan mentioned that the high level of detail in the plan worked against them in the situation. Paraskevas (2016) goes on to say that the hotel had been planning for two years for such an eventuality but since no training was offered to the lower scale managers no crisis culture was created. The CEO of the brand mentioned said large multinational and multi-property brands should implement training done at headquarters to each individual property. Sending a detailed instruction to the properties and practising a drill twice a year is not enough to be prepared (Paraskevas, 2006).

Besides having a crisis management plan, Hassanain (2009) argues that the emergency plan must be detailed to a standard where the duties of individual roles are clearly stated and achievable. The author continues to recommend regular drills suggesting a better chance of containing a small incident preventing it from becoming a large catastrophic event. Hassanain affirms that all members of staff should be aware of the fire systems, equipment and strategy

and evacuation plan, even if they are only at the hotel for a few hours (Hassanain, 2009). For instance, the United Arab Emirates hotel chain TIME, have included in their crisis management plan a customer experience program a 3D Animation multilingual video of about 2 minutes giving a briefing of the hotels fire safety instructions and the steps which are to be taken in the event of a fire. This video which is done featuring a sign language interpreter and has subtitles to facilitate any language. This was made available in every room of their properties (Hotelier Middle Eastcom, 2018).

Likewise, an exemplary crisis management operation reported in 2018 where a fire broke out in five-star Mandarin Oriental hotel at Knightsbridge, UK where journalist (Mercer, 2018) describes how a 115-year-old building was reported to have just finalized renovations a week before the fire erupted. Early indications noted that an internal façade, made for plants and vegetation, stretching several floors of the hotel was involved aiding in fire spread. The evacuation of this fire incident resulted in 36 hotels guests being evacuated together with other 250 employees with no injuries reported was highly congratulated for its internal teamwork and immediate response strategy that took place minutes after the activation of the fire alarm.

A wide spread of information regarding crisis management is available and never exhaustive however, Karam (2018) who studied a correlation between crisis management styles and strategic planning, concludes with recommendations for robust strategic planning to improve the ability of hotels to survive. Hence, crisis management reflects survival whilst strategic plannings focuses on the ability to thrive (Karam, 2018).

Chapter 3 Methodology

3.1 Introduction

This chapter contains the research methodology for exploring Five-Star Hotel Fire Safety and security crisis management adapted role and effectiveness. The chapter continues to discuss research design, validity and reliability, the sample, survey research, data analysis, and the protection of human subjects who participated in the research.

3.2 Research Question and Hypothesis

The researcher, prior to the study was working as a fire service volunteer where a certain degree of understanding in Fire Safety protocols and guidelines was realized. Thus, the researcher had set up a hypothesis in questioning, if Five-star hotel managers' preparedness in the fire and safety crisis management of staff and their guests in an emergency crisis is effective enough. Preliminary research was initially conducted to help in addressing further the hypothesis (Creswell, 2003). Hence, the researcher initially equipped oneself by searching and acquiring local information in relation to fire safety guidelines, standards or regulation/legislation that currently existed. During this time the researcher had gained more knowledge of the different hotel human resources managerial roles and operations, as well as in identifying the various fire safety professional experts in the flied, their ranking, roles and responsibilities.

Further research, using search engines such as Pro Quest and Google scholar, Twitter, electronic newspapers and library books was done over a period of three months. However, limited local material and studies were found to be sparse. At this stage the researcher was able to better formulate the hypothesis and refine a focus to answer the research question stating, that if five-star hotel fire and safety frameworks maintain the ideal requirements and imply legal concepts then their crisis management framework plans should reflect to be adequate and safe.

3.3 Research design, method and Sampling

3.3.1 Qualitative vs Quantitative

The research study employed a semi-structured, qualitative, exploratory research design using depth interviews where interviewees were aware that they could speak freely. As opposed to quantitative research, in-depth interviews allowed the researcher to prepare two sets of interview questions as a topic guidance directing and prompting specific areas important to researcher to be covered but at the same time keeping flexibility with leading questions (Bax, 2013). The researcher's preference to choose to conduct qualitative research was to allow the hypothesis in formulating a hypothesis statement as opposed to using quantitative research to test the hypothesis, which was not the researcher's intention.

Since locally, relatively little is documented about the need to reinforce fire safety regulations and make them legal for hotel industries, a qualitative design that is exploratory in nature is both viable and preferred ((Robson, 2002); (Creswell, 2003); (Bax, 2013)). Face to face in-depth interviews were conducted based on semi-structured questions intended to lead into further discussions. Robson (2002) and Bax (2013) both affirm that, in qualitative research designs, flexibility allows the design to unfold as the research proceeds unlike quantitative data where questions are structured and rigid. Furthermore, the researcher's qualitative approach hoped to establish and address the researcher's hypothesis which sought to explore the existent frameworks of five-star hotel being followed in protecting staff and guests from a fire crisis. Hence, a small-scale study was deemed to be appropriate to conduct a qualitative study given that locally there are only eleven five-star hotels out of which four were explored, contrary to quantitative studies where correlations need to be processed numerically and mathematically. (Creswell, 2003) supports this assertion stating that if a concept needs to be understood due to scarce research, then it merits a qualitative approach. The researcher attempted to explore managers insight and views on fire and safety with little to nonlocal evidence published making a qualitative approach ideal to capture experiences and views. A conceptual framework was developed to address the researcher's hypothesis statement (Ravitch & Riggan, 2016) which at that time helped the researcher's understanding on how the variables in the study were connected and complimented each other's roles. The authors reaffirm that by identifying the variables required for research exploratory investigation help to map out and set lead to interview questions that could gather data to be informed and at the same to explore the hypothesis statement. The table below represents the Independent variable which creates a need (cause) whilst the dependent variant represents the outcome (effect) on how the need is met.

Hypothesis statement	
If five-star hotels' fire and safety frameworks maintain the ideal requirements and imply legal concepts then their crisis management framework plans should reflect to be adequate and safe.	
Independent variable service providers	**Dependent variable service users**

Fire experts directly involved in legislation, infrastructure and protecting service users	Five-Star Hotel Managers that relate to fire and safety management for staff and guests

Table 1 Conceptual Framework - Cause and Effect

3.4 Reliability and Validity

The researcher was informed by two groups of people of different professions however, of which both are directly or indirectly involved with fire and safety responsibilities. All interviews were conducted during a specific timeframe to capture the best impressions and experiences. The interviewees, five-star rated hotel managers and fire expert personnel, at the time of the study were experiencing a post pandemic initial recovery from COVID-19 and the researcher's assumption was that they would have time on their hands to discuss fire and safety issues whilst preparing to be functional again.

The researcher during the interviews was aware of the possible bias that could involuntarily be triggered with comments or nudges whilst questioning interviewees therefore, made sure to remain detached and neutral as possible by keeping same tone in voice, comfortable sitting position and avoid any facial expressions to comments drawn. Also, the researcher made sure to avoid leading or directing the interviewees by avoiding empathising or prompting, to ensure that all elements were covered in an unstructured way (Smith & Noble, 2014).

However, the researcher appreciates that the interviewing role in the study may have had some influence, as is the case in many qualitative studies (Rolfe, 2006). Choice of the initial interview questions and follow-up questions posed to fire experts might have influenced the choice of what to observe and what documents to examine may have been influenced by this career experience and mind set which presents as potential for researcher bias (Rolfe, 2006). Consequently, recognizing this potential in advance of the study allowed the researcher to take special care to minimize such biases. The researcher on inviting interviewees to participate made sure to inform the participants that it will be strictly anonymous and that all recordings will be erased once the study is complete ad that transcripts would never be directly quoted in the study. This would help participants to experience safety and protection while encouraging sincere answers ensuring reliability.

As in many research methods, authors debate that (Smith & Noble, 2014)qualitative studies cannot be scientifically proven and no statistical correlation can be drawn, making data collection leaning towards subjectivity. However, some generalizability can be summarized from written transcripts documented after recorded sessions. The researcher made sure to write notes and write down transcripts hours after the interview to keep same momentum having less chance for misinterpretation.

Chapter 4 Data Collection

Initially, the researcher set out to invite both sets of his interviewee variables by email, sending out to each, a letter of invitation to fifteen hotel managers, two fire expert disciplines and two Enforcement Department, these can be found in Appendix 8.2 and 8.3. A time line was set up by the researcher to keep on track, as from the 21st March 2022 the invites were sent with a 10-day period was granted for interviewees to respond. Thereafter, a period of 1 week was permitted between the 1st - 7th April for reminder letters to be sent out. In the meantime, the first interviews took place on the 30th March till the 8th April allowing a 10-day bracket to gather data. From the 15 five-star hotels, only 4 accepted to be interviewed, this a couple of concerns from the authors part, a lack of interest in the subject or lack of knowledge of the fire safety plans in place could be reasons for refusal of interview. This could however also come down to a busy schedule not allowing time for this. One five-star property specifically mentioned that they had never spoken about fire raising serious concerns of the safety awareness.

All interviews were recorded except for two interviewees who declined being recorded hence, field notes were taken with their permission. After each interview session the researcher allowed time to write transcripts. Later into the research all transcripts were initially coded for key words and their content importance. During data collection, the researcher identified key words from coding the interview scripts for the researcher to be able to list six common themes that will help with the collating findings. Additionally, keeping in mind, to acknowledge biases by critically reflecting and deciphering conversations, to closely work with close relevance of data collection and analysis (Rolfe, 2006). The researcher kept clear meticulous record keeping by logging them in an excel sheet, categorized by time, date, place and name in a folder protected by encryption. All interviews demonstrated a clear direction to ensure interpretations of data are consistent and transparent.

As part of the facility requirement permission was sought and accepted from the ITS ethics board to conduct the above-mentioned interviews to protect participants from any disclosure of information or disclosure of identity. This was communicated to all research participants as well as signed as per consent form which can be found in Appendix 8.1.

The next chapter delves into the outcomes of the interviews and a discussion of these results evolves the topics above further.

Chapter 5 Findings and Discussion

5.1 Introduction

The researcher attempted to establish comparison between the different five-star hotels and sought out similarities and differences across accounts to ensure different perspectives are represented (Rolfe, 2006).

5.1 The Role of fire engineers

A fire expert who was interviewed stated that the reason to understanding fire and implementing measures against it is to protect and safeguard life. In the interview, a few points were raised in which he saw gaps in the system that are preventing crisis management in hotels having its full effect. He mentions the importance of fire being put into the plan from the beginning through fire engineers is essential and highly undermined. He believes that a fire engineer has the potential to evaluate every step of the process in a crisis management plan given the ability to act quickly.

This is a concept role that was debated throughout the interviews, the core essential of every crisis management system of hotels was to be as highly prepared and overlooked to reassure that a good response and action is instant in a possible fire incident. Fire experts continue to sustain that if fire engineers were warranted such an extended role of continuous monitoring and maintaining a specialised fire risk assessment post-construction than it would also be possible to investigate the cause of the fire for correction of measures and plans.

Currently in Malta, according to law, it states that either an electrical engineer or a mechanical engineer can be warranted for approving construction plans to go ahead as stated in Chapter 513, the Building Regulation Act. Additionally. the lack of recognition of fire engineers could be the reason this profession is so scarce and why companies opt out consulting for their expertise. Their role would boost up-to-date, fire safety knowledge to service users and the public in general. This clarification and need for warranting the role, was a common agreement finding amongst the fire experts interviewed. Reinstating that engineers should ideally possess certification knowledge in educating and installing awareness of fire and safety in buildings.

This would avoid unforeseen construction faults that presently are being co incidentally discovered through other professionals when carrying out other jobs.

5.2 Data Themes

Furthermore, the findings in this chapter were listed in themes which help discuss and compare data. The themes are listed with the following headings: Building Structures, Equipment, Incidents, Training, Crisis Management Plan, and, Future Fire Safety Initiatives.

5.2.1 Building Structures

The researcher's initial question to the Interviewees was intended to explore hazards in relation to buildings layout and structure. The information requested from the hotel managers was based upon what a UK fire risk assessment pinpoints, as conducted by law in the UK (FSO, 2005). Risk assessments take into considerations primarily the size of a building hence the height in storeys, rooms available, total amount of people occupying the building at one time. This data was collected and inputted into an Excel sheet as seen in Table 2 in the following page.

From the data gathered all the hotels classify as high-rise buildings according to local authorities, since they were higher than six stories equivalent to eighteen meters, the lowest being Hotel W with a height of eight stories equivalent to twenty-four meters. Hence, as Colerio (2016) stated these measures will determine the amount sprinklers and dry risers to be installed. Similarly, during the researcher's literature review this was highlighted as being an important determining factor of what equipment must be installed for evacuation but also for firefighters' usage.

5.2.1.1 Human Resources

The number of staff present in the building was also considered by hotel managers, this was to get an idea in the case of an evacuation, how the system plays out. Three of the four participants were able to give an immediate answer regarding the latter whilst an email was sent to Hotel W post interview, as requested, to confirm the data however there was no reply. As stated from three respondents they report that an influx of staff is recruited during the summer season. Moreover, Hotel M had the lowest number of staff being sixty during the day shift and working

with seven staff during the night. It was noted that they also had the lowest number of rooms available thus required less staff.

Infrastructure	Hotel E	Hotel W	Hotel M	Hotel H
Rooms Available	439	412	301	413
Height in storeys	11	8 stories	14	11
Occupancy at one time	1000+	/	750+	1000+
Hazard Level	High	High	High	High
Additional Hazards				
Electrical Installations	Substation Detached From Building	Substation Detached from building	Substation -2 in Underground Carpark	Substation level 1
Liquid Gas Stores	Yes	Yes	Yes Underground -2	Yes
Diesel Store	No	Yes	Yes	Yes
Chemical Stores	Yes Locked Cabinets	Divided and in locked cabinets	Divided and in Locked Cabinets level -1	Yes with Flammable Solvents Cabinet
Kitchens	1 Main - 3 Restaurant and 2 Satellite - 1 room service	1 Main - 2 restaurants - 1 room service	1 Main - 4 Restaurant Kitchens - 1 Satellite - 2 room service	1 Main - 4 Restaurant - 2 Satellite - 1 Industrial - 2 room service
Fat Fryers	7	7	9	14
Vulnerable People	Level 1 - Level 3	level 1	All floors available	Ground Flood
Sauna	Yes	Yes	Yes	Yes
Laundry	Internal	Internal	Contracted Completely	Internal
Waste Rooms	Yes in Loading Bay	Yes in loading bay	Yes - Ground Floor	Yes separate building with controls - self processing of waste
Underground Car Park	2 floors Capacity;100cars	2 floors - Capacity 120 Cars	Yes- Capacity 280	No
Car Workshop	Yes - Capacity 2 cars/ Storage of oils and fuel	No	No	no
Yatcht Marina	Yes	No	No	Not Directly attached to hotel
Pump Room	Yes Level -3	Yes Ground floor	Yes Level -1 and Level 12	Yes Level -1
HVAC System	Yes and Individual Units	Yes	Yes	Yes

Table 2: Building Structure and Identified Hazards

Hotel H had one hundred and fifty staff members during the day and was unable to specify an amount for the night shift. Finally, hotel E had the highest number of staff, the total workforce during the summer period reached around five hundred mainly with recruitment of students to match the demand.

After gathering the information referred to in Table 2, it was noted that all the hotels were rated as High Hazard status when analysed in a preliminary report, within the FSO (2004) online risk assessment checker. FSO defines building as High Hazards when having light engineering and assembly work, food processing, warehousing, extensive work with dangerous machinery or sharp instruments, construction and chemical manufacture as stated by the fire experts since five-star hotels offer a whole range of services which increases the risk of hazards. This compares to Hassanain (2004) study where similar findings were sought in relation to five-star hotels, reporting that over time such hotels have increased high level of facilities and services hence, increases the incidence of higher hazards placing hotels in high-risk type (Hassanain, 2004).

5.2.1.2 Additional Hazards

There was a number of additional hazards as referred in Table 3 of this research, the selected hazards voiced by the hotel managers should be taken in consideration when formulating a Crisis Management plan for staff and guests. Strother reaffirms in his article that Hotels should be always structured and prepared for even one-off events which the author calls “black swan” events (Strother, 2016).

5.2.1.3 Substations

One of the major hazards common to all the interviewed hotels was a substation electrical Installation of Enemalta of which they report as high risk. In Hotel M and H, these substations can be found directly within the hotel building whilst in Hotel W and E they are detached in a standalone room. As referred to in the case study of a local hotel, a nearby substation fire had resulted in guests being evacuated and even transferred due to loss of power for a long period of time. Within the interview of Hotel H, they too had suffered a fire within the Substation which was controlled by Civil Protection Officers. All the Fire Experts and Enforcements interviewed had similarly reported that electricity was a common hazard. This is further

confirmed by Ihsan (2013) when he was researching hotels in America, his findings demonstrating that electricity was a top cause of fire after cigarette buds and ashes.

5.2.1.4 Fuels

Additionally, the researcher's data continues to reveal that hotels had a storage facility of Liquid Propane Gas (LPG), this is the main source of fuel used in multiple areas of the hotel. In Hotel W, M and H, diesel was also stored in very small quantities for use in emergency power generators. Two of these hotels, W and H are aware of the hazard posed by LPG pipelines, which run through guest areas and can potentially leak and for this reason they installed various gas sensors which relay to the Fire Alarm Panel. The other two hotels, M and E had LPG provisions however, did not have gas detectors to help detect in case of a leakage.

According to the University of Bath in the United Kingdom (2022), citing the Control of Hazardous Substances to Health (COSHH) Regulations of 2002, it is a basic parameter that chemicals are stored segregated from one another. In the case of highly flammables chemicals such as cleaning detergents and pool chemicals it is recommended to install a flammable solvent cabinet. This method of storage is resistant to fire for at least 30 minutes and contains a metal spill tray to contain any spillages. While the hotels in interview all had a system of quality control checks and safe handling, Hotel H installed flammable solvents cabinets to mitigate the risk of an incident. Although it is highly unlikely that an incident could take place, the wrong storage of chemicals can result in the release of poisonous gases. If ignited these could be highly explosive (Health and Safety Ireland, n.d.).

A common finding within the interview data, was the various kitchens within the building. Hotel managers explained that due to an increase of catering services, various areas of the building had a kitchen. These could be identified as the main hotel kitchens, restaurant kitchens, satellite kitchens and room service areas. In Hotel H, an Industrial banqueting kitchen was allocated to service a conference block. Hence, Hotels M, W and H were equipped to safeguard the risk of fire spread, by having installed an anhydrous sulphur dioxide system (ANSUL) which is a fire suppression system. According to the NFPA Standard 17A, commercial kitchens are required to have a suppression system covering the cooking range to prevent the spread of fire and protect staff enough to be able to evacuate the premises. This, however, is not mentioned in the British Standards. One of the fire experts also mentioned that having a system

in place greatly reduces the consequences and cost since a quick knock down of the flames take place with a good chance of extinguishment (National Fire Protection Association, 2021).

5.2.1.5 Facilities

With the Spa and Wellness centre being a requirement for five-star standards, all the interviewed hotels had a Sauna within their premises. This is also one of the most common areas for a fire to break out. As mentioned in a news article (Times of Malta , 2022), a five-star hotel which refused to be interviewed for this research paper, experienced a fire within their sauna causing a partial evacuation of the hotel. During interviews with fire experts and also with enforcement they all recognized the sauna as being a big hazard with wood which is very dry and highly combustible turns into a serious fire straight away. One expert, from the interviews, debates that it is worrying that a high-level facility which is made to withstand heat, such as saunas, for very long periods of time is the main cause of fire in five-star hotels. He argues that it is not a problem of purchasing cheaper quality products however, it is a technical problem with the electronic system which needs to be seen to.

5.2.1.6 Laundry

As found in the extended literature review, appendix 9.1 of this paper, different fire service departments identified the laundry as one of the most leading causes of fire in hotels. From interviews, both hotel M and hotel H have reported incidents in the laundry and through their post incident risk report assessment they had similarly concluded that fire was likely due to the high amount of combustibles. During the interviews, the fire experts confirmed that fire in laundry rooms is not just the material items that are likely to catch fire but it can also be due to chemical products (bleach) as they easily react, oxidise or gets heated up in the dryer and combusts on its own.

5.2.2 Equipment

In all the four hotels, a vast amount of equipment was reportedly present, which according to the OHSA are regarded as standard. Table 3 in the next page has compiled all the equipment that was reported by the hotels in the interviews.

Fire Infrastructure	Hotel E	Hotel W	Hotel M	Hotel H
Fire Alarm System	Yes- Basic	Yes - Adavanced	Yes -Advanced	Yes- Advanced
Emergency lighting	Yes - Everywhere	Yes-Everywhere	Yes - Everywhere	Yes - Everywhere
Glow in the dark Signage	Yes	Yes	Yes	Yes
Smoke detectors	Yes	Yes	Yes	Yes
Heat detectors	Yes	Yes	Yes	Yes
Carbon Monoxide Detectors	No	Yes	Yes	Yes
Gas Detectors	No	Yes	No	Yes
High Pressure Hose Reel	3 on each floor	Yes Covering all areas	Yes 3 on each floor	Yes every 25 m
Low Pressure Hose reel	Yes 3 x 15m	No	No	No
Wet Riser	Yes	No	No	No
Dry Riser	No	Yes	Yes	Yes
Fire Extinguishers	300+	Yes	Yes	Yes
Sprinkler System	Yes Except Underground Car Park	Yes - Where Necessary	Yes - Everywhere	Yes- Everywhere
Kitchen Suppression System	No	Yes	Yes	Yes
CO2 Suppression Systems	No	No	FM 200- Server room	FM200 - Server room
Breathing Apparatus	2 Sets	No	No	No
Duct Fire Dampers	No	No	No	Yes
Fire Escapes	3 Stairwells	4 Stairwells	3 Stairwells	8 Stairwells
Stair Pressurization Fan System	No	No	Yes in Fire Escapes	Yes in Fire Escapes
Fire Doors	Yes 1 hr Rated	Yes 1 hr Rated	Yes	Yes
Maintenance	Alberta/Panta Lesco/Fire tech	Alberta	Alberta	Alberta / Firetech
Refuge Room	No	Yes with telephone	No	No
Fire Curtains	No	No	Yes Lobby Staircase	No
Dry/Wet Riser Intake	3 inlets	2 inlets - Level 3	2 inlets - Level 1 and 3	5 Inlets
Evacuation Lifts	No	No	3 Evac Lifts	No

Table 3: A list of Fire Equipment located in the four, Five-Star Hotels Interviewed

The basics according to OHSA are; Fire alarm system, emergency lighting, glow in the dark signage, hose reels and portable fire extinguishers. Hotel E was noted to have a basic fire alarm system which unlike W, M and H, only gives an indication to the area of the building in which a sensor has been activated hence, consuming crucial time to initiate an evacuation. Other functions were found in the other hotels W, M, and H which claim to have a detailed system which informs also notifies the emergency services and top management using a break glass unit. Additionally, they claim to have an automatic shutting down of the Heating, Ventilation and Air Conditioning (HVAC) system, closure of fire doors and release of magnetically locked fire exits. As mentioned by Chandrashekar (2020), the advantages of integrating the fire system with a building management system is ideal. Not only does it empower automatic systems to

kick in however you are able to identify location of people during an emergency, easier maintenance of the system and overall improving the safety of the building.

5.2.2.1 Physical Barriers for Smoke/Fire

A finding in Hotel M was that it was reported that a fire curtain (Figure 1) which connected to the fire panel (Figure 2), protecting the lobby temporarily from a fire that may occur in the restaurants by creating a physical barrier. A spokesperson for Smoke Guard (Smoke Guard, 2021) conversing in a blog reiterates how effective automatic deployment of a fire curtain can be. Not only does it limit damage but it prevents the loss of life as it contains smoke and fire allowing evacuation to take place. One may question the reason why other hotels do not have same installations.

5.2.2.2 Sprinkler Systems

Sprinkler systems were a common finding in all the hotels which conforms with the British Standards Institution (2017). Outstandingly, Hotel M also extended the provisions to the garage with Hotel W responding vaguely claiming to have sprinklers only where necessary. Hotel E had the system in the building but not extended to the one hundred car underground parking spread over two floors, and Hotel H did not have an underground car park. Both fire experts expressed the danger which an underground carpark presents, the high fire load could cause irreversible damage on the structure due to the high calorific burn creating very intense temperatures.

According to both (British Standards Institution, 2017) and the (Building Construction Industry Department, 2004) ventilation is required in underground carparks however they state that there is no requirement for fire sprinklers. One fire expert argues that although ventilation is important to reduce the temperatures and contain smoke however, a fire sprinkler system will contain the fire which renders it more effective. Under no standards or local guidelines are sprinklers mandatory in car parks. The British Standards Institution (2017) refers to BS 5306 - Part 2 within its guidelines to specification to sprinkler systems however, this guideline has since been outdated and is no longer being advised (British Standards Institution, 2017). Thus, the researcher again questions if fire safety systems are up to date and valid for this day and age.

5.2.2.3 Positive Pressure System

A stair Pressurization Fan System was reported to be present in Hotel M and H (figure 3). This is a mechanical ventilation system which protects the fire escape routes by not allowing smoke to enter them as a result of positive pressure. One of the fire experts however, did not recommend such a system due to how the system is actually designed. The system was based upon a staged evacuation whereby the fire floor is evacuated primarily followed by the floor above and floor below, this system continues till the whole hotel is evacuated. Studies have shown however that in an emergency many occupants flee directly to the stairwell opening multiple doors at once, this would cause leaks in the system which would render the system not as effective, allowing smoke in the stairwell which could be deadly. Lay (2014) supports this theory in full stating that the system has failed on multiple accounts through his deep research in the topic in various countries such as the USA, UK, India and Europe. The researcher again questions how appropriate the system for use in hotels.

5.2.2.4 Protection of Vital IT Infrastructure

Hotel M and Hotel H chose to protect their server room using an inert gas system, using FM200 gas as the suppressant. These are ideal for fires on such equipment due to them being waterless and limit the damage by quick extinguishment. The benefit of using such a system according to (Enviornmental Controls Fire Protection, INC, 2019) is that it is also safe for humans, less costly to replenish and reaches extinguishing levels in just 10 seconds. Both fire experts said that it comes down to how vital the system is for the hotel to continue operation post incident, protecting it by installations such as FM200 is in the interest of the business.

5.2.3 Training

Training should be given to identify and report any risks, awareness of building safety infrastructure and emergency procedures. Continuous training spread across the calendar year will keep the standard high by keeping employees up-to-date (Manson, 2018). In all four hotels it was noted from data collected that there was a substantial amount of training being given. These ranged significantly, they all conducted basic awareness training of fire and an explanation of the emergency procedures in the induction course. All the hotels also selected a few of their members as well as all the kitchen department to conduct a basic firefighting course

which enables them to identify basic fire extinguishing equipment and how to safely use them. In Hotel W, H and E, an Emergency response team was set up to deal with fire incidents. This training includes basic fire but also teaches the staff members how to effectively undertake an evacuation of the building. In hotel M, this was being set up at time of interview. Hotel E further chose security staff, maintenance staff and duty managers for advanced firefighting and rescue training.

5.2.3.1 Advanced Firefighting Training

Breathing apparatus, low pressure hose reels and a wet riser system was noted in Hotel E but not in any other of the four hotels, together these provide security staff with offensive/internal firefighting capabilities. Critically, during one of the fire expert interviews it was stated that if continuous training is not provided and completed, the ability to use such equipment is lost as well as the ability for situational awareness of danger during a fire. The latter continues to argue that if breathing apparatus sets are used, a sense of false security could negatively impact the operation and endanger the lives of staff members. This agrees with what Piotr Pietrowski (2016) reported, saying that Breathing Apparatus (BA) sets should only be used by employees as a last resort, eliminating the risks of an incident occurring or reducing them at source is much more effective than the BA set since it only protects the individual wearing it. This then again requires constant training to avoid failure of the equipment, misuse by the employee or wrongfully donning the equipment.

5.2.3.2 Dry Riser Systems

Hotels W, M and H had dry riser systems installed with Hotel W and M having booster pumps connected to a reservoir to fill the system. One of the fire experts expressed that the system required less maintenance on the internal system with no risk of damage from incidental events such as a broken pipes or accidentally opening of an outlet. The pumps that fill the system relies on two pumps, one that is active and one standby, from experience sometimes the pumps fail leaving the fire service to fill the system using fire appliances.

On the other hand, hotel H did not have this system, relying on fire engines to fill the system currently. This however was in the planning stage to connect the system to a fresh water reservoir which is a permanent water source, being filled by a reverse osmosis plant and the

government main system. If this concept is undertaken and completed, this would solve the issue of accessibility to the hotels and roads leading up to them causing delays to fire service bowsers since the system requires large amounts of water prior to being able to firefight internally. Hence, one fire expert expressed that an emphasis should be made on improving fire safety and containment to prevent the eventualities of this occurring and allowing enough time for resources to arrive.

5.2.4 Incidents within Hotels

Incidents in hotels can have a great effect on all involved, as seen in the literature review when a crisis management plan react well to an incident the outcome can be a positive one to the extent of preventing loss or injury to guests and employees. Table 4 is a compilation of incidents that took place. The wide variety of fires in Hotel E, M and H shows that hazards are present in various parts of the hotel. The most common fire according to the interviews was in the Laundry however, hotel W reported that they never had a fire within 25 years of operation which is questionable and Hotel E also reported that they had three fires within 15 years of opening the hotel. A point which could cast doubt on the answer is that the hotel has been open for 25 years with the manager claiming he was in the position from that time.

Incidents	Hotel E	Hotel W	Hotel M	Hotel H
Sauna				
Kitchen	•			
Laundry			•	•
Outside Event	•			
Kitchen Lobby	•			
Office			•	
Bin Fire			•	
Substation				•

Table 4: Fire Incidents within Hotels (Proper columns and rows- be more specific for each hotel)

5.2.5 Crisis Management Plan / Fire Risk Assessment

The Crisis Management Plan of a hotel consists of the Fire Safety Strategy. During the researcher's reviews, the majority of authors of various studies agree that crisis management plans need to be a shared responsibility between all the staff members. HORTEC emphasises that the responsible person however, must coordinate and make sure implementations are being done. The HORTEC document clearly states that the person chosen to fulfil this role must not exclusively have qualifications but also have experience which would enable him to understand the risks involved and how to deal with them. The role is broad but being up to date with legislation, staying updated with fire safety practises and be open to learning about new hazards makes it an ongoing learning experience. The fire safety register (FSR) is the record of the hotels fire safety plan. This would include information from the blueprints of a building to past incidents and their investigation. The responsible person oversees making sure this file is up to date at all time and available to all staff. Keeping the FSR up to date shows a good crisis management system in place, every year it should also be reviewed with the Fire risk assessment. The FSR should be available also for inspection by the fire service at any point in time (HOTREC, 2010).

To be able to formulate an effective FSR and Evacuation Plan a fire risk assessment must be done regularly, this was seen in Hotel M, W and H with Hotel E conducting a standard risk assessment which takes fire into consideration. A specific fire risk assessment takes into consideration all the activities that will be held within the hotel and the risk that a fire could start. HOTREC continues to argue that risk assessments you are better are able to identify areas which could cause serious harm to life or the structure itself. Additionally, the identification of hazards in the hotel would result in a report in which certain hazards would need to be moved to safer areas.

HOTREC outlines that the risks imposed on persons with disabilities and the elder need to investigated to determine the right fire protection measures to be taken whether physical or managerial. Consequently, the HOTREC European guidelines recommend that the responsible person, who is deemed competent, needs to carry out a yearly fire risk assessment of the property. Every third year an external competent person should conduct the fire risk assessment. This, however, does not standardise the timings since the report should be constantly reviewed to reflect changes in the hotel. All findings and changes that are made

should be documented for inspection and include a timeframe for the adjustments to be made (HOTREC, 2010).

In all the hotels a large folder with the emergency plans in place were demonstrated to the author of this study. Managers in hotels M, W and H stated that plans have to be updated due to their affiliation with large international brands. In Hotel M, a yearly review is done by fire engineers whilst in hotel H due to the very high safety score given by the brand a full fire safety audit is conducted every 18 months while a risk assessment is conducted yearly too. In Hotel W, the fire risk assessment is also conducted yearly by the mother company. The fire expert who reviews such plans however did not agree with the large folder, stating that in an emergency nobody would be looking through such a complex document. He recommended short concise instructions to facilitate understanding. Hotel H also had a mobile application that is downloadable for duty managers and top management which gives quick instructions on the incident at hand. This application also communicates with the headquarters of the brand to alert them of an ongoing process to which a dedicated crisis management team will deal with the incident's aftermath. This could be viewed as business continuity, a subject which one of the fire experts interviewed also said that hotels should focus on.

The Government of the United Kingdom publishes many Fire Risk Assessment templates to help any type of building in being aware of their fire safety. One of these documents is the Fire Safety Risk Assessment – Sleeping Accommodation which applies for hotels. It is divided into two sections to help the person who is conducting the assessment. The first part is the explanation of the Fire risk assessment and how it should be done follows below:

- *Step 1 Identify fire hazards*
- *Step 2 Identify people at risk*
- *Step 3 Evaluate, remove, reduce and protect from risk*
- *Step 4 Record, plan, inform, instruct and train*
- *Step 5 Review*

(HM Government, 2015)

This assessment is the foundation for fire safety to be introduced into a building. The second part focuses on precautions and information on fire safety. The information goes as far as

equipment that could be included and escape routes taking into consideration the awareness of people whilst sleeping, which one may need when conducting the review (HM Government, 2015).

Throughout the interviews the hotels where not taking into consideration the response by each individual in a fire situation which is also different, this can be calculated by time. The evacuation time of a person can be taken from the moment a fire is detected to the time it takes the last person, be it a staff member or guest, to reach an assembly point outside of the building. An equation was created by Ihsan (2013) which incorporates the three stages that make up the total time.

$$\mathbf{T_{evac} = T_{alarm} + T_{pre} + T_{move}}$$

T_{evac}: The total time from detection to the last person reaching the assembly point.

T_{alarm}: Is the delayed time from when the first flames occur and either someone or a sensor activates the alarm.

T_{pre}: Is the pre-movement time, this is the moment a person inside the building hears the alarm and reacts to leave the building. Complications arise when guests go to investigate the incident themselves or take time to collect their belongings.

T_{move}: this is the minimum time it can take a person to physically go to an exit point.

The crisis management plans found in hotels H, M, E and W assume that guests will automatically follow signs to the nearest fire exit. When preparing a crisis management plan, it is important to take into consideration that guests will tend to take the route they are most familiar with, unless directed to take another. Foreigners coming from countries where there is advanced systems of fire safety will tend to be less aware and could lead them to expecting systems that actually do not exist. The high fire load which hotels have, produce a large amount of smoke if not extinguished or controlled immediately. This alone can determine the way people react to an incident. In small incidents where there are minimal amounts of smoke, patrons tend to take an action-avoidance approach and see it more as an inconvenience. The risk in this case is not being perceived and creates issues when evacuation is initiated (Ihsan, 2013).

As referred to in the Legislative Frameworks, The Building Construction Industry Department launched the book 'Design Guidelines on fire safety for buildings in Malta' in 2004. This was a major advance at the time since it provided a standard based upon the regulations in the United Kingdom. Since the launch of this book however, apart from becoming obsolete and outdated, no legislation was endorsed thus keeping it a guideline with no legal binding (Coleiro, 2016). One of the fire experts added that through the OHSA law which stipulates very basic regulations, these can be contested in court against the Civil Protection Department since the OHSA Law makes reference to the Civil Protection Directorate. An issue which further complicates the legal process and confirms that Malta does not have a fire safety culture. The expert continued to state that in any other country such as Finland, the public would implement the law for their own safety and protection and not try to find a loophole to go around it.

5.2.6 Future Fire Safety Initiatives

The International Workplace (n.d.) blog says that Fire Safety Legislation, although it varies slightly in every country, still serves the same purpose. This is to reduce or mitigate the risk that a fire presents towards life and property. Through legislation, fire safety has emerged which attempts to create a cultural awareness inside workplaces. When asked how well they their standards would fair with new legislation all the four hotels where confident that even for future purposes they are well above the laws and regulations and so they will not be affected by any laws that come out. Hotel W also remarked that no new laws should come out with regards to fire specifically as the General Manager is responsible in entirety for the Safety of the Employee at all times no matter if he is present or not. It is in his best interest that an employee or guest is safe and it should not be imposed by a law. From the enforcement point of view, they would like to see specific fire risk assessments take place rather than add it on to the generic risk assessment. This would significantly aid the situation. The enforcement also said that the increasing high-rise situation must be met with fire service equipment that is capable of dealing with incidents within these buildings potentially hotels.

From the interviews with Enforcement authorities, one recommended that their law be amended to take fire safety off of their responsibility. This is extra according and should be seen to since they have no clear education about fire safety and fire safety legislation. In the

other interview with enforcement, fire safety could not be observed in full. This is due to the overload of work on the authority by other industries leaving to resort to campaigning. During these campaigns the authority can focus on one industry and fully enforce their law. For the hotel industry two campaigns were done, one in 2007 and one in 2018. During these campaigns several infringements were found however the interviewee could not specify whether five-star hotels were involved since all the hotels were involved. The enforcement from experience faced one major issue in five-star hotels, this was the lack of maintenance around fire doors, upon manual testing the fire doors do not completely close or the magnet fails to release the door. This eliminates the possibility of compartmentation which could deteriorate a situation very quickly. The enforcement did not specify if any action was taken during these finds, rather stating that there were never any big accidents but they still enforce them. A statement made by the enforcement officer was that in fifteen years, two campaigns had been conducted and some breaches where found which led to action being taken. There was no need to go and check them again anytime soon since they should have learnt from their previous mistakes.

5.2.6.1 Fire Safety Awareness

Within all of the hotels that were interviewed there was positive feedback of the awareness of fire by the interviewees. A few worrying points emerged however, the rate of staff turnover was most commonly an issue whereby Hotel H, W and M all found it difficult to find interested employees to undertake the basic fire training. This is related to the cost of the training also whereby investing in somebody who will leave shortly can be seen as a waste of budget by top management. Another issue is that the younger students which are entering the industry are not aware of the dangers posed by fire and thus cannot support the manager and his team in the event of a fire. Hotel E did not see these as a threat however saying that the hotel has a good retention rate and does not rely on the part time students who are only here mostly for the summer period. Hotel W devised a plan to tackle the issue by creating Health and Safety Month, this is one month within the year in which awareness is created through various activities and posters throughout the hotel. By doing so, the security manager plans on making people aware that safety is the number one priority on which all operations rely to continue functioning.

Chapter 6 Analysis

6.1 **Gap Analysis**

A reference is made to Gap analysis whereby this method would have helped if applied, to assess current situations and move on to the expected outcomes. Since Gap analysis can be performed on a strategic level as well as an operational level hence identifying present performances and working towards expected outcomes or action plan for each individual hotel accordingly. There exist 3 types of gap analysis, SWOT, Mckinsey 7s and Nadler Tusman.s model. The author attempts to mention the principal areas where interviewees had highlighted there present gaps . If this approach were the author's choice may be an application of the Mckinsey 7 s method where hotel managers would be the experts in outlining gaps, explore weaknesses and align them with the 7 elements which this tool is known for. (QuestionPro, 2022) OBJ

Throughout the research process Hotel managers outline that their current crisis framework plans in relation to fire and safety are not formal, and each hotel tend to subjectively focus on different goals with distinct levels of priorities.

A multidimensional perspective of their crisis management process extends from displayed floor plans of structural and logistic layouts to equipment, training, and awareness. However, little was identified on how the business manages continuity and how effective the respective crisis management plans are in minimizing potential risks before a triggering effect (Pearson and Clair (1998). Specific fire risk assessments need to be carried out rather than generalizing in the normal risk assessment required by OHSA. This will enable Hotels to further improve their crisis preparedness.

Currently regulators admit that they cannot manage closely due to lack of resources. The author continues to argue that it is a well-known fact stated several times in literature reviews that fire crisis management's focus is of saving lives and should never be compromised (Pearson and Clair, 1998). One might argue why authorities have not responded in strengthening their departments to regulate hotels specifically like is being done for other industries such as construction.

6.2 **Crisis Management strategies**

As previously stated, crisis management is the key to success or failure depending highly on preparedness and how one perceives risks. As it has been revealed from data collected in this

research, hotels managers priorities differ, with poor insight when looking for their hotels crisis vulnerability, thus resulting in being less willing to invest in resources to prepare for such potential incidents. Five-star hotels which are represented by a brand management contract are usually given a substantial budget to implement frameworks and install specialized fire equipment/furniture, this is clearly seen and cannot be mistaken as the general perception since many hotels, that do not form part of a brand, choose to meet basic OHSA and MTA regulations which can be seen in Appendix 8.

6.3 **Fire and safety training**

Moreover, hotel managers tend to find difficulty sustaining fire and safety training programs. Managers speak of hardships in retention of staff and fast intake of new recruits student workers, as a drawback, however one may question if this strain is a cause rather than effect.
Yet one questions how much time and finance managers are ready to allocate funding, on ongoing training. On the other hand, providing employees with one-time training and equipping them with advanced firefighting equipment could result in more dangerous situations which could potentially create more casualties. It may be assumed that , if fire and safety strategies become set tasks, learnt on a daily basis, then no employee or client can be missed. This continuity gap can be the missing link to support employees training and inform clients in crisis events as part of client experience. Other supportive measures to ensure up to date fire and safety awareness and knowledge can be set as a compulsory IT platform program besides the physical drills. Other options which other countries have adopted could be Internal social media alerts sent to employees to necessitate importance. Yet again as in most Eastern high-profile hotels an introduction to digital media animated or interactive programs for staff and guests can be a modern way to sustain a crisis management plan. (Hotelier Middle Eastcom, 2018).
Although there is no evidence yet on the effectiveness of such IT training and knowledge yet good physical signage remains the ultimate need to be put in place considering that in an emergency digitalization could work against the objective. This however enables better

preparation on part of the guest which could come in useful in a real emergency. Sub-contracted workers were also not included in this video presentation, these still fall under the health and safety requirements of employees, however, must also be briefed on fire procedures. One may debate if the nature of employment contracts may also be the result of lack of training or even a cost- cutting measure to fund training for full-time employees neglecting the fact that reliance on sub-contracted employees may increase the risk of fire due to lack training and investment in these employees.

Two of the hotels specifically mentioned that they provide verbal training however no evidence or confirmation could be done. This, considering incidents which have been caused by hot works being done by subcontractors. This is evidenced in the Mandarin Oriental Fire (Mercer,2018) and locally in the case of Hotel H, in both cases hot works at the premises or next door started a fire which consequently required an evacuation of the premises.

6.4 **Legislation and Regulation**

The lack of legislation has left Maltese hotels to handle fire themselves. This alone can create issues as expressed by one of the fire experts whereby in court they face a multitude of problems when trying to get properties up to standard in the construction phase.

Although laws are in place, they are highly scattered and vague leaving large loopholes for cost cutting to take place. The basics are monitored by MTA and the OHSA department but as said by one of the fire experts interviewed, they do not take into consideration firefighting operations. This too should be included in crisis management plans as they are the last line of defense when tackling fire incidents.

With new legislation in the pipeline, this will hopefully regulate properties such as five-star hotels to be able to have a standard to follow. During the research, as already expressed, being part of foreign brands has shown to carry major benefits for local five-star hotels . Not only do foreign experts ensure extremely high standards but reinforce a business continuity plan. This is the ability for a business to continue operations even after a fire crisis.

As discussed in two of the interviews with hotel security managers, it is exceedingly difficult to find staff members which are interested in fire prevention and safety. Two main reasons

were the younger generation of people that are being employed, such as students and the high staff turnover. According to a report published by Jobsplus , 2019, the staff turnover rate of the hospitality industry ranged over the years, averaging 60%. (JobsPlus, 2019) Together these create an unstable workforce for fire safety. This in turn could also be a direct result of lack of enforcement leading to a low safety culture.

It was also noted in interview stage that the security teams whilst overseeing fire and safety never handled an incident themselves, relying on the head of security to manage to extinguish the small fires that had occurred. This raises two questions, is the training being given effective ? If not, could there be inaccuracies in the account of the interviewee? This could be further investigated with future in-depth research. Identification also needs to be done in terms of procedures and what the incidents where. A training needs analysis is recommended to identify the improvements needed in this case.

One of the fire experts and MTA and OHSA all agreed that there is effective communication between each other on the topic of fire. This, however, can be seen as partially inaccurate since MTA stated that they did not want fire safety and security under their regulations making this a subject the MTA did not want to discuss. They also claimed that their job is paving the road for other entities such as the OHSA department, leading them to find all the implementations required in place. A slight tension was also noted during the author's interviews to the fact that MTA was not at all trained to look out for fire hazards thus, they felt that they were not able to complete the task effectively, relying on other entities to complete it.

OHSA however noted that the respective laws under the authority's remit are primarily intended for the employees, however, the guest benefits from these also. They mentioned that MTA had certain responsibilities and that was their prerogative to take care of. Another factor was the lack of routine inspections done by OHSA, two in 20 years, which means that MTA are relying on OHSA to act however since they are not routinely checking, and not planning to improve this since there were no major incidents, it is not happening. This means that the two entities rely on each other to complete tasks relating to fire safety creating a gap in the system which needs to be addressed prior to a major incident occurring.

From the feedback the author also recollected that lack of communication is extremely lacking between the two which is not healthy for the tourism industry's safety. OHSA and CPD

however had a healthier relationship, working together on issues encountered at workplaces relating to fire safety and a shared pool of knowledge of experts which help each other when in doubt. This was reported from both sides thus further confirming the claim. CPD did also state that they wish to see educational systems come into play with engineers being able to study fire engineering and be recognized with a warrant or at least provide a diploma which would improve fire awareness. They also mentioned that there was a healthy relationship with the Building Construction Agency which is also involved in the proposed new law. These are all positive signs of better managed departments seeking to improve an unregulated industry.

The Author also suggests that ITS should get involved by providing students with courses relating to Fire and Health and Safety. These are two integral parts of any job, especially the tourism industry. The next generation of employees must be equipped to serve clients and guests but also to identify hazards which could potentially lead to business closure, guests' injuries or death, and personal injury or death.

As discussed in the literature review, tourists are becoming more aware of their safety, both at home and when abroad. The second requirement according to Maslow's Hierarchy of Needs is Safety Needs. This reflects the importance that this topic carries which needs a lot more awareness. Reviews like of Cox (2015) and Morris (2016) already show the importance that guests give to fire safety, taking to media to review the experience. In Malta this industry carries one of the largest GDP shares and is also one of the largest in Europe, so large repercussions are at stake. As one of the fire experts stated, "*we should look to improve our safety in buildings and not look to find loopholes within the law*". This highlights a concern because as a country Malta cannot move forward and match foreign standards as ultimately resulting in national cultures permeating organizational cultures, developing implications in the way organizations are run including safety.

In conclusion, the above topics selected in this chapter would have been better addressed if a in depth study using an appropriate Gap analysis method mentioned earlier to identify an action plan that will address the main goal. However, since the author had a limited period to abide to, this was not possible and could only mention some general recommendations. The next chapter will discuss and gather final conclusions.

Chapter 7 Conclusion and Recommendations

This section will recap the entire research main debates complied from the transcript theme findings that will aid in answering the hypothesis statement. Furthermore, the author of this paper will attempt to present recommendations that will lead to further study.

The research explored five-star hotel managers' fire and safety framework structures and crisis management plans. The author would have liked to have more hotels involved in the study however eleven invitations were declined. The author's assumptions on factors that might have been the cause of their decline were related to the lack of organizational safety culture that is present in Malta. Hence, non-participants might have felt it challenging to discuss fire and safety issues whilst others might have argued that it was not a topic that had any priority to them.

The five themes extracted from the hotel managers transcripts were interrelated with the fire expert responses of which were considered to owe the ideal concepts and best effective measures. Although the author was initially questioning hotel crisis preparedness, the way forward was to formulate a hypothesis statement that stated: *If five-star hotel fire and safety frameworks maintain the ideal requirements and imply legal concepts then their crisis management framework plans should reflect to be adequate and safe.*

Through the summarized themes during the collecting data the author concluded to have three major findings described below which support the statement.

Firstly, a missing link was found between managers perception of crisis preparedness and law enforcement regulations.

The lack of legality lead hotel managers to deal with crisis in their own way sometimes overlooking local guidelines or recommendations and relying on foreign standards.

Secondly, when hotels are not affiliated with a foreign mother company, fire safety procedures and implementations of certain equipment was found to be inadequate and spontanious. This

is a direct result of no local laws regulating the subject, thus allowing hotels to implement what they deem correct.

Thirdly, hotel managers should be keeping staff trained in preparing for a fire crisis. However, due to factors out of their control such as, lack of staff, high turnover, lack of interest by employees and the influx of student employees, fire safety has not been the top priority. There is a lack of awareness of people's behaviour in event of fire whereby no data can be found that specifies how plans and reality differ from each other. This will need to be further explored with further research in this sector to be implemented within the crisis management plan of hotels to potentially saving lives and preventing loss and damages as much as possible.

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Chapter 9: Appendices

9.1 Extended Literature Review

9.1.1 Causes and Prevention of Fire within Hotels

Common causes of fire within hotels in America are centred around cigarettes and their incorrect disposal, electrical faults, kitchen fires due to oil and grease build up and arson. Studies show that most fires occur in guest rooms, the kitchen and within the shopping areas if applicable (Ihsan, 2013). Ihsan (2013) within his research outlines how the Australians Fire Service report nine categories of the most common fires they respond to. These were compiled in a database from which the fire service created an educational plan to help prevent them.

- Kitchen: Naked Flames and Grease/Oil Build up.
- Electrical Blankets.
- Short Circuits of Electrical systems.
- Cigarettes.
- Lights (Bed side lamps could create heat and if positioned close to furniture such as curtains could begin a reaction).
- Dangerous Liquids.
- Tumble Dryers.
- Candles.
- Heating Systems.

However, prevention does not only stop at what employees could do but the very design of the hotel buildings also provides the largest part of fire safety and security of all persons inside the building. This could be summarized in eight requirements as follows:

1. Structural Fire Protection.
2. Escape Routes.
3. Smoke Control.
4. Ventilation System.
5. Sprinkler Systems.
6. Fire Detection Systems.
7. Fire Hydrants and High-Pressure Hose reels.

8. Dangerous Goods.
   (Ihsan, 2013)

9.1.2 Fire Experiences

A recent news article reports a fire which occurred in 2017 when a five-star hotel in Scotland saw two deaths of guests. A court ruling heard that the fire began from the wrong disposal of ash. The company had no written procedures and the employees did not have sufficient training despite recommendations in two fire risk assessments carried out the same year and previous year (BBC , 2021).

Below are two typical incidents with electricity being the main cause:

a) In a local village, a five-star hotel establishment was evacuated due to a fire in a neighbouring substation. As a result of this blaze, it was decided by management to evacuate the premises containing 15-20 guests at the time. Electricity to the nearby area was also shut off to deal with the incident, lasting for a few hours until repairs were brought into effect, leading to guests being offered alternative hotel rooms in the vicinity (Cilia, 2021).
b) Another incident took place at a prominent five-star hotel in Malta in 2022 in which a suspected electrical fault in the sauna initiated a fire. Guests and staff were evacuated due to the risk it imposed. They were allowed to re-enter the hotel a few hours later once the scene was made safe by the Civil Protection Department. The spa facilities were closed off to guests until repairs could be organized (Times of Malta , 2022).

Within the EU, fire safety varies extensively as conveyed by Alan Cox (2015), a fire safety consultant for the Fire Service in the West Midlands and Warwick County and the West Birmingham Health Authority. Cox argues that countries within the European Union vary with certain areas having high safety standards and some areas have poor standards, with some countries having high safety standards across the whole of the country while some do not have any at all. He questions how it is possible for one to ensure safety in such accommodations for tourists since many of the EU standards are not mandatory making it difficult for 28 countries (at time of writing) to come to par with each other.

On a visit to Hungary, Cox was disappointed to see the hotel he was staying at had virtually no fire safety infrastructure in place. This was booked through a large UK tour operator and was recommended by the operator for large groups. Upon bringing the issues up to the operator, he was told they send an Inspector from the UK who only had one issue with a fire escape door. The hotel was in full compliance with Hungarian laws. Cox was informed that in the future, guests booking through the operator would be allocated rooms closest to the fire escape to help the situation but this had no effect since the whole hotel was not fire-safe. Upon hearing this, he took it upon himself to get in contact with the Hungarian Fire Service who agreed with his report and confirmed that they were unable to act since there was no legislation. This was forwarded to the operator who withdrew the hotel from their services with immediate effect. Cox says that this is the problem with bringing the EU up to standard since instead of tackling the issue, the hotel was just withdrawn from operation on a foreign level creating a financial burden (Cox, 2015).

Within the comment section of the report issued by Alan Cox, a guest who was currently staying in a Hotel in Malta expressed her concerns stating,

> "*Currently staying in one of the better apart hotels in Malta. Shocked that we have a thin piece of fancy plywood for our room doors with a huge lock. No fire doors? Is this legal in 2016 in EU regs*?" – Janet Morris, 2016.

Hotels and entertainment establishments have experienced incidents of fire in large rooms, such as, a dance hall being engulfed by fire within minutes. The main reason for this happening is the design and decorations of the room aiding what is known as a flashover, in firefighting terms (Ihsan, 2013). A flashover is one of the stages of a fire in which the total heat coming from the fire, the hot gases and the hot walls of a compartment, cause any surface which has combustible properties to release ignitable gasses. If the room is well ventilated, for example a door is left open, these gasses will ignite instantaneously resulting in a fully developed fire (NFCC, 2021).

9.1.3 Effects of Fire and Smoke on the Human Body

When considering how important fire safety is and what implementations should be done, one must take into consideration the effects a fire will have on the people inside the building. These can essentially be split into 'Heat' effects and 'Smoke' effects. Heat can potentially affect the body of a person severely depending on the amount of exposure. These range from heat

exhaustion to deep burns effecting the nervous system, lungs and skin. Smoke has two significant factors to how it effects humans. The first is that the amount of toxins, carcinogens and irritants is high with oxygen being close to nil. The oxygen in the blood is replaced by carbon monoxide, a product of smoke which causes what is known as asphyxia. Unconsciousness soon ensues with death imminent if left untreated. Secondly, smoke inside any compartment reduces visibility and in doing so makes obstacles in the fire escape route or even the seat of the fire, invisible. Hot smoke also rises quickly which further reduces visibility especially for instance, in large open plan lobbies (Ihsan, 2013).

9.2 Consent Form for Semi–Structured Interviews

Dissertation Consent Form

INSTITUTE OF TOURISM STUDIES
IN ACADEMIC AFFILIATION WITH THE EMIRATES ACADEMY OF HOSPITALITY MANAGEMENT

Title of Research: Crisis management's role and its effects on fire safety & security in five-star hotels in Malta

Researcher: Benjamin Crisp 132699M

Degree: Bachelors in International Hospitality Management (Hons)

Dear Sir / Madam,

I, Benjamin, a student at the Institute of Tourism Studies am currently in the final year of my Bachelors in International Hospitality Management (Hons). I am carrying out research on Crisis management's role and its effects on fire safety & security in five-star hotels in Malta.

I would like to explore your views on this matter by asking you some questions. The purpose of this form is to provide you with information so you can decide whether to participate in this study. Any questions you may have will be answered by the researcher.

There are no known risks related with this research project other than possible discomfort with the following:

- You will be asked to be honest when answering questions.

The information in the study records will be kept strictly confidential. All data will be stored securely and will be made available only to those individuals conducting the study. No reference will be made in oral or written reports that could link you to the study. Your identity will not be revealed in any publications that result from this study.

You can terminate your participation at any time without prejudice. You also do not have to answer individual questions you don't want to answer. Your name will not be attached to the questionnaire and I will ensure that your participation remains confidential.

Participant's declaration

I have read this consent form and am giving the opportunity to the researcher to ask questions. I hereby grant permission to use the information I provide as data in the above-mentioned research project, knowing that it will be kept confidential and without use of my name.

Participant's Name	Participant's Signature	Date
Benjamin Crisp		
Researcher's Name	Researcher's Signature	Date

9.3 Hotel Security Manager Interview Questions

Managers Interview

Thank for accepting to be interviewed. As already discussed, my name is Benjamin Crisp, and I am researching 'Crisis management's role and its effects on fire safety & security in five-star hotels in Malta'. By no means is this a test or verification of the establishment and the Interview will be totally confidential, and all evidence of data collection will be deleted once complete.

Firstly, would you be able to share the following to be able to build an image of the building itself?

- How Many stories high is the hotel?
- Is it one premises or is there more than one building?
- How many rooms does the hotel consist of?
- On average how many staff members are present during weekdays and weekends ?
- See table 1 for checklist

1) What structural implementations have been done to ensure Fire Safety within the hotel? Do you think the current measures are enough to render your hotel safe?

2) Have you ever experienced a fire on your hotel grounds. What was the origin of the fire, and did this change anything in your crisis management plan?

3) Crisis management; Do you have a crisis management plan in place in relation to fire? On which basis do you create and adjust your Fire Safety standards? What is the main method of warning guests of a fire? (PA System?)

4) Involvement ; Do staff receive formal training in fire safety and first aid firefighting(to what level)? Is training done on site and is it Formal/Informal? (Fire Marshal Team?)

What firefighting equipment is installed in the building (see table 2)

5) Preparedness; How often do you perform Risk assessments in relation to Fire Safety? Are FF equipment often checked and maintained. How do you rate your pre preparedness in case of a fire?

6) How would the implementation of local legislation in fire safety impact the company and business? Do you feel that insurance has an effect on the way the hotel has handled fire safety and implemented it?

Thank you once again for your cooperation

Table 1 **Hotel Area:**	**YES/NO**	**OTHER:**
Sauna		
Indoor Pool		
Outdoor Pool		
Waste rooms		
Hazardous storage: chemicals		
Laundry		Contractor or internal ?
Offices		
Lift Machinery Rooms		
Substation		Where is this located?
Pump room		
Kitchen		Is there one main kitchen?
Satellite Kitchen		How Many? how developed?
Room service Area		What type of equipment is in the setup?
Fuel storage: Liquid Gas		Any other type?
Airconditioning units		Is it a central system? Individual? Connected via ducts? Where is intake located?
Refuge rooms		
Underground carpark		How many levels? And what capacity
Frontal car park area		
Conference Rooms		
Fire Escapes		How many fire escapes are there to one floor? What is the ratio of persons/rooms to one escape?

Table 2 **Fire Equipment**	**Y/N**	**Other**
Fire Extinguishers		
H.P. Hose Reel		
Dry Riser		
Wet Riser		
L.P. Hose reel		
Sprinkler System		
Kitchen Suppression System		
CO2 Suppression Systems		
Smoke detectors		
Heat detectors		
Carbon Monoxide Detectors		
Fire Alarm System		
Breathing Apparatus		
Glow in the dark Signage		
Emergency lighting		Is it situated everywhere?
Duct Fire Dampers		

9.4 Fire Expert Interview Questions

Fire Experts Interview Questions

1. Could you describe your job and role within the institution and how does this translate to public fire safety with a five-star hotel context?
2. What, in your opinion, do you think are the main priorities a hotel should make when Planning, Implementing and Evaluating a fire safety strategy particularly in a five-star establishment which offers services such as sauna, industrial laundry and 24/7 services. These could include both FF Equipment and Procedures.
3. What Current Legislation Frameworks are in place for 5-star hotels considering the number of guests and potential risks which these large establishments carry? Do you think they are under/over considered?
4. Do you have any experience (During/Post incident) of any fires within 5 Star Hotels? How did these incidents reflect on the fire safety of that hotel? Could they have been avoided?
5. What do you think is the way Forward in prioritizing and maintaining Fire Safety?

9.5 Transcripts

9.5.1 Hotel E Interview

Hotel E

Firstly, would you be able to share the following to be able to build an image of the building itself? See table 1

Sauna, indoor pool, outdoor pool, waste rooms, chemicals hazardous storage areas, laundry totally internal, offices, lift machinery rooms, substation near the marina area not attached near to hotel , Yacht marina, pump room, 1 main kitchen 3 rest kitchens, satellite kitchen 2 cooking equip, room service area heating equip, fuel storage – liquid gas only, Ac units central and individual connected by ducts through hotel. Intake from roof, no refuge rooms or refuge area. Underground carpark 2 floors with capacity of 100 cars, conference rooms 2, 12 fire escapes 3 in every floor, 11 stories high one building. 3 wings with 439 rooms, around 100 employees in winter, in summer 500 employees not all on shift together.

What structural implementations have been done to ensure Fire Safety within the hotel? Do you think the current measures are enough to render your hotel safe?

I think we are very safe, one of the implementations are installation of fire sprinklers which only two other hotels have in Malta. We have sprinklers everywhere except in the garage. Fire doors which are rated for 1 hr, 300 fire extinguishers, high pressure hose reels, wet riser, low pressure hose reels, No Kitchen suppression system, No CO2 suppression system, smoke detectors, heat detectors, no CO detector, fire alarm system main panel in the guard room repeater to back office. Breathing apparatus, glow in the dark signage, emergency lighting everywhere even in the garage, No smoke control system.

2) Have you ever experienced a fire on your hotel grounds. What was the origin of the fire, and did this change anything in your crisis management plan?

In 15 Years we had 3 minor fires, one was in the main kitchen which was controlled by a fire blanket, another was a BBQ fire in the marina area controlled by a fire extinguisher – outside and one in the hotel lobby which was controlled by a fire extinguisher. Nothing changed from the plan since they were very minor accidents.

3) Crisis management; Do you have a crisis management plan in place in relation to fire? On which basis do you create and adjust your Fire Safety standards? What is the main method of warning guests of a fire? (PA System?)

Yes, so all security officers and maintenance technicians are fire marshals, we give them advanced fire training at Hal Far. And we become fire marshals, so we are able to control fire by means of extinguishers and hoses. We choose some team members from each department also and we give them basic fire training so they are able to recognize different fire extinguishers and can use one. The role of the fire marshals is that they are immediately

sent to the scene of the fire to inspect. There is a 24/7 cover like this. We test all the equipment every year through contracts by Alberta and fire tech. to get the standard 15 years ago I used to go to other five star hotels and I got the best from what I saw here. Twice a year we also do a full fire evacuation to test the system. Every month we test floor by floor by raising the alarm to that certain floor. We go as far as entering the room obviously by informing the guest beforehand. The alarm is the main method even in their rooms, I also inform team members to help evacuate.

4) Involvement ; Do staff receive formal training in fire safety and first aid firefighting(to what level)? Is training done on site and is it Formal/Informal? (Fire Marshal Team?)

The advanced fire is done at ISTC while the basic fire is done by civil protection on site. Also awareness training is given through an induction course to all new members entering the hotel.

5) Preparedness; How often do you perform Risk assessments in relation to Fire Safety? Are FF equipment often checked and maintained. How do you rate your pre preparedness in case of a fire?

I do the risk assessment yearly and if need be more, all ff equipment is check by contractors Alberta, fire tech and panta lesco. Maintenance is involved in checking monthly visually. I think that overall we are good. I want to implement the kitchen suppression system and the sprinklers in the garage to improve.

6) How would the implementation of local legislation in fire safety impact the company and business? Do you feel that insurance has an effect on the way the hotel has handled fire safety and implemented it?

Obviously there are costs involved and that is why we don't have those two systems as said before. I think we should invest more money, at the end of the day you will save more money, because if you have a fire everything is going to be destroyed. We never needed the insurance and they never imposed anything on us.

9.5.2 Hotel M Interview

Hotel M

Firstly, would you be able to share the following to be able to build an image of the building itself? See table 1

With every five-star hotel you have a sauna, pool, gym, it's a five-star establishment so you would need to expect certain luxury that other four stars hotels.
outdoor pool maybe?

Outdoor pool yes, we are building one, a bigger one. we are going to have two, the roof one it's going to be the adult only one because its small and the new one the children's. quite big it's four times or six times bigger than the one we have.

Regarding waste rooms are they separated ?

Yes, there is a waste room, fully tiled and fully airconditioned.

Hazardous storage for example of chemicals,

yes, chemicals we have three chemicals' stores,

Laundry?

Yes

Is it contracted or contracted ? So there's no actual washing machines?

No there's only collection and the third-party company that takes care of all laundry.

Are there offices?

Yes

Lift machinery rooms so are there an actual room that takes care of all the lift machinery, the elevator ?

Here are four guest lifts, three service lifts, one is specially allocated for waste.

Substation?

Yes, we have one.

Is it located underground?

Yes, -2

Pump Room ?

Yes

Kitchens?

So, there's one main kitchen and all restaurants have their own. Satellite kitchen Is only located for ballroom, but they don't cook and it's most of the time they just use it as a satellite kitchen just for heating

Every restaurant has a kitchen for itself gross including cold rooms and freezers.

Room service area is that part of the kitchen or it's separate and they have where to cook maybe heat ?

Room service is separate from the kitchen under the F&B.

All right, and do they have any cooking equipment ?

No no no .

Fuel storage .

Liquid gas and diesel

Air conditioning units is it a central system?

I'm not the engineer but we have a complete system for the hotel so two units, that feeds all the hotel

So, they are connected basically via ducts ?

Yes, yes, they are connected by ducts and the two intake is it located on the roof and closed no one can enter them.

Refuge rooms , for example if the garage catches fire, people have somewhere to go that is fire resistant for a few hours

This is a tricky question, so we have all our doors certified as fire doors for an hour one hour , something like that. Upon hearing the emergency alarm there's no refuge you have to go to the assembly points

Underground parking how many levels does it go down ?

- 1 and minus two levels down and then outside that is being built as well on level three.

How much cars can the car park take?

Two hundred eighty

Conference rooms ?
Yes, with large conference rooms

Fire escapes ? How many are there?

So, we have to understand the structure of the hotel. It is not a normal hotel like a rectangular shape like all other hotels where you went the main and there's fire exits at the end, we have guest lost starting from level 4 to level 12 right that's the best guest floors 4 to 12, Level 3 is the reception and restaurant. level 2 we have the indoor pool and the breakfast restaurant. Level one which is the banquet area where we have the ball room studios and conference area, so from level 12 to level 4 there are three escapes routes, one in every zone because we have three zones A,B, C they all lead to level 3

The staff have multiple emergencies exits.

When were you planning this is there a ratio of persons to rooms ? Which you would calculate?

Yes, there's a ratio yes, that how they calculated the zones ABC.

How many stories high is the hotel in total?

14 stories

Is it one or there is more than one building ?

It is one building divided in three zones, they are connected. Zones because then we don't call them three separate cause they're still going, we are in zone C, in the middle.

How many rooms does the hotel consist of?

301

On average if you know how many staff members are present during weekdays and weekends ?

We are usually around 60 employees on daily basis during the day, 7 days a week, however after 2300hrs employees are in skeleton staff thus around 7 staff members.

What structural implementations have been done to ensure Fire Safety within the hotel? Do you think the current measures are enough to render your hotel safe?

So, it will become a resort, next summer with the pool. because we will extend our guest facilities to minors and families. In fact, at the moment, we attract mostly business, why? is it so for businessman, the latest technology .

So, as you are mentioning it's quite a complex hotel so if there was no light it would be quite a challenge to move around the hotel, did anyone take anything consideration to come implement for example measures which would aid evacuation for example

So let me start with this, because you need to understand the structure of the brand, we are one hotel out of 8000 we reached the 8000 hotels around the world not only the brand but there are 30 brands under one head. Technical engineers on fire, life & safety visit us each year and do an audit and during our pre-opening because we were rebranding from another brand , which is still under the current brand. We decided to call it the first Malta one. So, during the pre-opening engineers came on fire life and safety and increased measures for lighting equipment, emergency light, for Sounders, or for example they have a protocol, as with the old brand we used to lock the emergency exits with a magnet, they go off when the alarm is raised. Now we have a standard where you cannot lock those. They have a panic bar which pushes out. They don't rely on the alarm, they heavily rely on sprinklers where we used to have one sprinkler in each guestroom, now we have two. so, they heavily rely on sprinklers so for them the priority is water sprinklers, containment.

So basically, the fire standards of this hotel come not only from yourselves or local legislation ?

They will not let you open because your part of a brand. Infact, they came about three times before we were allowed to open, when they found that we were compliant with their standards they let us for example, the installation of a fire curtain over the main staircase from the lobby and the reception which cost the hotel about 40,000 euros. It was a requisite from the brand. So, it works by the alarm going off seconds after that goes down. €40,000 because it's a requisite from the brand, in local legislation there was no need for it.

Have you ever experienced a fire on your hotel grounds? What was the origin of the fire, and did this change anything in your crisis management plan?

So, if you ask any chief security, also finally I got promoted two days ago to a director of loss prevention. Loss prevention is the word that our brand around the world use instead of security. It covers fire, life safety and security. The nightmare of every chief security is fire. I had two fires over here, 1 and the most common fire that I've seen was from the tumble dryer, we have the industrial tumble dryers, and it wasn't because there's something there was something wrong with it, but electronically, because we check the fluff every day. So, it's not the fluff that caught on fire but the motherboard. That's one and then we had another electrical fire which was a multiplug, it was overloaded. But it's not from us but from our tenants that we rent the place to, because we have offices. The hedge is included with us, that's the business center and on level 0 we have five offices over there as well on the left as well. It was overloaded and one time I had a fire. Another time I had someone smoking a cigarette and he threw it in the bin. Obviously, he got fired the employee.

9.5.3 Hotel H Interview

Firstly, would you be able to share the following to be able to build an image of the building itself? See table 1

So, it a very complex building but we are an individual branded hotel. We are surrounded by a village of the same company you can say.

How Many stories high is the hotel?

Part of the hotel is 10 stories, and another part is 11 stories, the 11-story part is an extension after about 5 years of the hotel, it is adjacent to the main building. With regards to waste room, we are soon to complete a project where we will be having a sort of bring in site. this will attempt to only send 10% of our waste to the landfill. The rest is separated. Storage wise we are building a stand-alone building where a compactor is present. The room will be fully air-conditioned to have full control over odors, possible dangers of ignition and heat. The Chemicals are all stored according to there danger. Plant room has sectionized chemicals with water baths to absorb any explosions that may occur. The Laundry is part contracted and part internal, most of it is done on premises with all equipment being industrial. Lift machinery rooms are not exactly in use anymore. Our new lifts have the motor systems on the actual lift compartment. This totally eliminated the room. We have a substation in the loading bay at level 1. It is cut off from nearby systems. Plant room is very big. Kitchens are split into the following, 1 main kitchen which also has a restaurant. Then there are satellite kitchens where only heating is done. A small kitchen for the lobby. The conference center has an industrial kitchen for banqueting. The room service area is part of the restaurant in the main kitchen. Fuel storage : Liquid Gas, Diesel for the generators only if lights go out. AC Units: a central system with chillers that come from the plant room. In the new block of 11 stories, you can choose between heating and cooling on an individual basis. The system is centralized with the intake being on near the marina and roof. These are the cleanest areas of air around the hotel. The ac systems shut down automatically from the fire panel. There are no car parks for the hotel and no refuge rooms. There are 8 fire escape shafts which are calculated by ratio of persons to square meters. These are protected by a positive pressure system which would not allow smoke to enter the escape. Within the corridors there are fire doors which are activated and close by the use of a magnets. These create compartments to trap smoke and fire from spreading.

How many rooms does the hotel consist of?

413 rooms

On average how many staff members are present during weekdays and weekends ?

Depends on business level, on peak there could be 500 people at one time.

What structural implementations have been done to ensure Fire Safety within the hotel? Do you think the current measures are enough to render your hotel safe?

Our Brand, when they build a hotel, they have their own standards which are very high. They take safety to a whole new level they take care of everything. They even have fire dampers in shafts for example.

Have you ever experienced a fire on your hotel grounds? What was the origin of the fire, and did this change anything in your crisis management plan?

12 years ago, there was a fire in the laundry which started from a chemical reaction from essential oils that are used in the spa, when they came into contact with the bleach the oil started heating up and started a fire. Recently a fire in the substation was tackled but it was more smoke than fire.

Crisis management: Do you have a crisis management plan in place in relation to fire? On which basis do you create and adjust your Fire Safety standards? What is the main method of warning guests of a fire? (PA System?)

So, fire wise you have to start with the system you have. The system we have is extremely accurate, it doesn't give you a zone and you have to go and look for it may be missing the fire. Addressable systems give the exact location of the incident. Sprinklers cover the whole hotel where as far as I know we are the only hotel which have sprinklers everywhere. A tannoy system enables communication system other than the alarm and siren. The tannoy allows me to speak to one room individually or even the whole hotel.

4) Involvement ; Do staff receive formal training in fire safety and first aid firefighting(to what level)? Is training done on site and is it Formal/Informal? (Fire Marshal Team?)

Every six months our brand Internationally meets to discuss different ideas and plans. If you have a good safety and security score the audit happens every 18 months on average, we have the highest score in Europe 95%. We are no 1. They do an audit for us, and they send experts from abroad to check everything. When this happens obviously any shortcomings are taken note of and are implemented by the hotel. Training is given to management about any incident not just fire. The site crisis room and site crisis team are the whole management to respond. The manual provided by the brand gives you what you need to do in any situation. We also has an app which is live. It is called Alert Sense; you enter it and you have the whole manual on what to do in a crisis management event. This is provided to all managers and duty managers. As soon as a report is filed, it will be sent to top management and brand UK head office where they will scale the event depending on severity. The message will be then relayed to the media, experts of safety. There is a structure on everything. If you look at media for example there are people who are selected on purpose to talk to the media post incident or during. It avoids everyone saying different things which could damage the brand. In a recent nearby fire, I sent an alert for example where the building adjacent to the hotel caught fire. The smoke started moving downwards and entered the conference Centre. For that there were 400 people in the Centre at the time and I took the decision to evacuate the conference Centre only, so a partial evac. We were very prepared, and it showed the planning was good. I went into the back office where the command Centre for fire is operated, and I initiated the evacuation. The structure in place is there and it is clear that's whats important. People who work by day are given awareness training on fire safety. We doen't want to risk the health and safety of its employees so they would rather evacuate than firefight. Basic Firefighting training is not done by staff as a result, only by maintenance staff, kitchen and HODS. A refresher is done every year. In the kitchen we go over and above a fire extinguisher. We have a Ansul system which is automated, if the chef loses control of the fire on the cooking station, he pulls a lever, and it will release an extinguishing agent. This is located on top of the cooking station.

What firefighting equipment is installed in the building (see table 2)

Fire extinguishers, High Pressure Hose reels – every 25m there is a hose reel, 25 m in distance because the distance a hose reel an reach is that so they cover each other, Dry Riser with 5 inlets- needing around 10000 liters of water to fill completely, booster pumps, Low pressure hose reels, sprinkler systems- located everywhere , CO2 suppression system – FM 2000 in IT room which uses Inert Gas to extinguishes fire, smoke detectors, heat detectors, carbon monoxide, gas detection, all connected to the fire panel. If you go around the hotel some fire doors are with a magnet, once activated the door will open. They are closed because of security. If the door doesn't release due to fault, there is a break glass unit so that you can manually exit anyways. Breathing Apparatus – not used for firefighting but for spaces which are oxygen deprived such as the water storage tanks/cesspit. Signage glow in the dark. Emergency lighting all round, fire dampers. The fire team is made of duty managers making up a 24/7-hour Rota. The most difficult time when you have a fire is the night, during the day the tourists go out of the hotel to visit places around

Malta so you would have around 100/1000 residents with a lot of staff who can assist. At night all the guests would be in the hotel, 995/1000 would be there maybe 5 will be out. Staff would be much less. We have thought about this in the evacuation plan as there are a difference between the day and night, you have to do the same job but with less people. The system caters for that.

Preparedness: How often do you perform Risk assessments in relation to Fire Safety? Are FF equipment often checked and maintained. How do you rate your pre preparedness in case of a fire?

By law you have to certify the equipment once a year. we went a step further than this, they imposed that every 6 months you have a visual check by the staff. 6 months later Alberta would come in and check for the yearly inspection. Our brand also doesn't let the job be handled by the hotel itself. It must be done through a third party to avoid missing things. Risk Assessments are done by a person from abroad so International. They are done every 18months at the moment since we have a high mark. The brand imposes a very high standard on us. I have worked in other hotels, and they are not even beginning with us. I think we are very well prepared for fire.

How would the implementation of local legislation in fire safety impact the company and business? Do you feel that insurance has an effect on the way the hotel has handled fire safety and implemented it?

If the policy of our brand is higher than the standard of the law, we will use the policy, if it is the other way round, we will use the law. With ease we will use the best. Insurance I think did push but from my job I don't really get into the details. Obviously, they are important since they carry a very high fee which we try to reduce as much as possible by implementing these features mentioned above.

What do you think of accessibility to the hotel for fire brigade ?

I don't think where we are is a major issue if you have to go in the middle of paceville yes. We are on the outskirt's kind of. From time-to-time CPD even come and do a familiarization of the hotel to help when dealing with incidents. Obviously, an operation here would be challenging since the sheer size doesn't help in losing orientation. Discussions are also in place to fill the dry riser system to a wet riser, but that gets into more of an engineering feat. If not, there is the option that we will fill the system from the water storage that we have through the booster pumps. If this finishes it will fill up from the government system. We also have the reverse osmosis system so there is no lack of fresh water.

Fire Expert Interview

Thank you for accepting the interview, basically I'm doing, crisis management and its effects on fire safety within five-star hotels.Would you be able to explain your role as a fire expert and to what extent does your job translate in in maintaining public fire safety within five-star hotels?

Alright, So, first of all, the the number of of five star hotels that have been or are currently my clients are numerous. OK, they are not the major source of work. Obviously because we do not specifically cater to them. We cater for every type of industry. So we have a variety of different clients from various parts of the industry, five star hotels or other hotels in general. I would say that there are like 3, I think three of five star and others that are of a lesser ranking but still.

So you're you're independent expert on the subject of fire, particularly.

Yes, consultant. Exactly independent fire. Fire safety consultant.

so between fire engineer and the fire consultant. What's the main difference?

Currently, there is no definition because in Malta there is no such law that defines it. However, if you want the international definition, there is a definition. So let me let me explain this because it's a little bit difficult. Abroad a fire engineer is somebody who has studied for an engineering degree specifically and graduated as a fire engineer. A fire safety consultant doesn't necessarily need to be an engineer. It can be somebody who has studied fire safety from from a managerial point of view. So in fact, there are degrees that are specifically designed for fire safety management. I have done the fire engineering . Well, it's quite simple, but then it starts getting difficult when you bring that that subject into Malta because over here the only people who allow themselves to be called engineers are either Mechanical Engineers or electrical engineers. We have an engineering act alone for engineers which specifies that you need to have a warrant. For that Warrant to be granted, it needs to satisfy several criteria, one of them being that you must be either a mechanical or electrical engineer because fire engineering in Malta is still non existent unfortunately. OK, so for somebody to call themselves a fire engineer. So for example, the two call themselves fire engineer, they have to be a warranted engineer. And they decide that they want to call themselves a fire engineer, whereas somebody who is a qualified. As a fire engineer from somewhere, as from abroad for from England mainly, and comes to to work here in Malta is unable to get himself or herself a warrant, and therefore technically in Malta cannot. not going to work but there are some areas were getting to work is more complicated.

So in your opinion, what do you think are the main priorities a hotel should make when planning implementing and evaluating their fire strategy safety strategy.Obviously they have services For example, industrial laundry and obviously large kitchens, storage of fuel and these things.

Yes.
Yes, yes, yes.

Um, what do you think is the main priorities that they should consider?

The the priorities the the first priority is when carrying over risk assessment. They should always look at the means of escape. So so this is the safeguarding of of Life OK, the, the the live life safety factors. OK, now many times this will will will fall under a number of categories. You cannot just look at it directly. OK because it it contains or it it, it is involved in a number of things. OK. So first of all you would have like early detection for example. OK, so in the hotel it gets a little bit more complicated because normally you do not get the triggering of the alarm and sudden evacuating evacuation of everything, but you get the pre alarm, where only reception and security normally would be advised and then they need to react. Um, quickly, because otherwise the the alarm would still tripped into a full evacuation, so those few moments normally not more than a couple of minutes and it is very, very important that the hotel gets this right because the outcome of that could be very, very significant.

Alright, so it's more of planning, rather than dealing with the actual fire.

OK. Um, it's more well, it, both because you you need to plan in order to be able to react quickly in order to wider tackled the fire immediately or or start the evacuation if it is already out of control.

Do you think for example, there are lots of systems, um, one of them is really from. From my interviews I have seen quite a few. So for example positive pressure. Systems I've seen obviously in kitchen is very common nowadays. There are the suppression systems.

Yes, yes. Uh-huh.

Yeah, these these are extra as such or?

Then well, it depends because it depends on the design. If you have, if you have sufficient compartmentation to protect the stairwell, normally the the you mentioned the the positive pressure systems. Um, those those are normally to contain the fire. Well, the the smoke outside from the stairwell or the lift shaft or the protected lobby or whatever it is. OK, now in a hotel, it is a little bit difficult to maintain such a system because you have. So that system is is relying upon a limited number of doors being open at a single point in time at any point in time. OK. Now when you have a number of doors being closed. Being closed and open the positive pressure ventilation is not the most reliable, OK.
It yeah, basically we have leakage. Is that the system would be designed to maintain a certain number of leakage is so uncertain number of doors being open. However, when you have untrained people, basically guests, OK um, who are moving around the hotel and especially if they are escaping you, you you don't really have have a control on how many, how many doors will be open at any point in time and you could get more doors than the system can can handle and and therefore the system not being not being sufficiently or not not being able to provide the the the What's what the the the protection, the level of protection that it was originally intended for. OK. So although positive pressure is a good system, unfortunately studies have shown that it is not the most reliable and sometimes you would bet you are much better off providing layers of compartmentation. With the walls and doors for the exactly, um, that are a lot more safe, fail safe a lot more fail safe.

There was also a lack of, I don't know if it's so common in Malta. I haven't seen it yet and so much and abroad they have a lot of refuge rooms.

OK. Yes, in a few

These are these are from what I could gather, therefore high-rise mainly.

Yes.

In Malta. What is classified as a high rise?

Um, if I'm not mistaken, but I'm not hundred 100% sure it's from 7 stories upwards.
Seven, so it it it might but however. However, I say that, but it depends, because it depends on what we are looking at. For example for for a building to be to be high rise in terms of what firefighting equipment needs to be installed, you need six stories because you need it to go over 18m and there you go under a different category of buildings in terms of what you need to provide, you might need dry riser, wet riser , you might need sprinklers but there are many other factors to consider the purpose group whether it's a factory whether it's a hotel whether it's uh you know and on those who the footprint decides or not just the height also the size.

OK, very good. And so as you already told me there, there isn't much like legislation and.

There isn't.

So there's nothing in place at all because. My question was what current legislation frameworks are in place for five star hotels.

Yeah. So, OK, so there there isn't none at all, but there are they are very fragmented and scattered. So realistically, you have some legislation in certain legal notices. For example, we give me a second I tell you. I don't know how. How familiar you are with the legal notices.

I found I found I think 4 they they were basically one of them is one is OHSA the other one is the Civil Protection Act.

Yes. OK, now this civil protection act will not exactly tell you stuff. You need to know about buildings. Uh, the one from OHSA is I think 424 of 2002 I think. Let me check.
Minimum health and safety requirements.

The FSO of England, could it be applied to Malta?

Uh, it's uh here in in Malta we have a document that copies that.
Well, not exactly the the fire safety order, It copies the approved document B. I don't know if you are familiar. If you it, it's it's free to download. You can download it anywhere you want. Basically on the Internet. approved document B. OK, it's for fire safety and and in Malta wel have a document that basically copies it and literally almost entirely. It's called Design guidelines met so mild that design guidelines for fire safety in buildings in Malta is that table. if you bought the book and you read the introduction, you will notice that the introduction says that the Minister and that refers to Minister Ninu Zammit. Ages ago., it says that the minister hopes that this book will serve as the introduction of the legislation in the near future. Now, obviously we are more than 20 years in the future from when that view and we are exactly at the same point where that book left. So nothing happened basically from that point onwards.

So do you think the laws are under or over considered.

Under massively under massively on there because because.
The I mean the. without, without trying to well, without sounding political, you know. But governments are not prone to try and push legislation of this kind forward because it will impede, or at least hinder the development that they so much want to push forward. So the moment they they are seen or perceived as putting an obstacle which is obviously not an obstacle, it's it's something necessary. But the moment Think they might be perceived that putting some kind of extra burden on development? That's it, that's it. So all that people are pushing it forward, but it is never actually getting any further.

Obviously they cannot spend completely an infinite amount on fire safety, but what do you recommend at least they implement?

Well then only and it depends on the development. Sometimes the the costs we are talking about are not actually massive because if you talk about for example implementing fire doors installing fire doors. And it it is more expensive and you need to replace doors or the existing doors with fire doors because they're basically have already spent money on a number of doors and now you're into scrap them and buy new ones. Whereas if you are buying them new. Doors. Starting off like that part of that cost has already been offset by if you had bought doors which were not fire doors. So yes, it would be slightly more expensive, but at the end of the day would have buildings which are a lot safer.

Do you have any experience of any fires within five star hotels and how did these incidents reflect on the fire safety of that particular hotel and are they incidents that could have been avoided?
by training for example or or something similar.

I'm I'm trying to think of fires within five star hotels. Let me see. Uh, I'm.

Even small ones.

There was. There was one with the with the sauna. Let us all know recently, not not very well. I cannot remember which hotel that was, and I don't know if it was five star or not.

Alright.

Moreover, had very little information about that to to at least to comment about um.

Does your job actually go into the post incident?

Well, we could, if it happens to be a client, a client of ours, or if they do invite us to go and investigate their fires, we could, but we we have not been involved in investigation of Five star hotels I have had. The houses of the elderly, which could be seen as some kind of of hotel realistically, they operate very similar link or just you have you have residents with which are a lot more permanent than than than hotel.

OK.
Exactly. Exactly.

Yes, there was the the Hilton, I I think you are aware of the the latest.

Yeah, So so Hilton, there was Corinthia had a sauna fire and the Excelsior. There there was quite a few alright. Um, So what do you foresee? Fire safety practices in hotels moving forward?

Uh, yes. What I foresee is that being there and what actually is already in place. So it's not that I foresee it. I I know it is like that and that because of the lack of legislation here in Malta. and we we see that what pushes forward, the improvement of the system is not actually the law, but it is either the interest of the owners to protect their them themselves, both from a liability point of view and also from a image business image point of view. OK. Um, and also what? It is mainly mainly in the force forward for for local businesses of this sort is insurance. Very important insurance because insurances are now becoming basically insurance insurances are becoming almost like the legislation making the legislation where the law is lacking.

Driving factor really.

Uh, yes, exactly driving factor yes and and the if the hotel is owned by foreigners.
Because they would be so. So the hotel in Malta would be a franchise of another one and they they want to keep. So the foreign owners want to keep the standard across the board. So the hotel, the monitor needs to match the the standards of the hotel somewhere else. And therefore, even though it is not a legal requirement in Malta, something whatever it is. The owners, whoever they are and wherever they are from would send inspectors to carry out inspection and They try to match or try to match the requirements that they put here in malta to what they have anywhere else. Before you mentioned the refuge area, now in high rise buildings such as skyscrapers, ther is the practise sort of like a room or even a floof, however in smaller buildings even a large hotel you would have a refuge area. Now this is the area Within the area of the fire safety lobby/firefighting lobby which would normally house the stairs and the lift if its an evacuation lift. And that is where people who are unable to use the stairs would need to wait for assistance in order to be assisted down downwards. OK, now that I have.

What is the reason lifts cannot be used in emergencies?

Um, so first of all, it needs to comply with a certain standard. OK, it needs to comply with us with a standard that makes it an evacuation lift. Now there is a a number of of of layers to answer that question. So the first reason is that the lift, the lift shaft itself, and the lift shaft it's considered to be a shortcut that the smoke can use in order to go from one area to another, So basically when we explain this, because from the smoke point of view between the lift shaft and the chimney there is absolutely no, no difference, no difference. So even if the lift had to continue functioning, even if the lift had to continue working, the lift itself wouldn't be a safe place to be because even if you are in the lift cabin for 20 seconds If during those 20 seconds the lift is is filling up with smoke those 20 seconds are 20 seconds, you might not have. OK, so the lift might continue to operate normally, but the moment the doors open you might not be able to get out anyway because you have died in the in the process. OK, so, so that is one reason. Um, yeah, sometimes lift, lifts are designed to be evaluation lifts, but they need the construction of the building in general needs to accommodate. You cannot just decide. Do I have a lift? I will change it to an evacuation lift, because even if you bought a lift that is certified to operate as an evacuation lift, the infrastructure around it might not allow it.

Fire Experts Interview Questions

Could you describe your job and role within the institution and how this translates to public fire safety?

Right now, the situation is a bit better than the report that I wrote in 2016. We have completed the legislation and have taken a proactive stance by creating the law and even passing it through cabinet in parliament, however at the same time certain events happened and the business construction agency BCA, one of us will be responsible for fire safety eventually. One still needs to see however if the civil protection will be in charge and be represented by the BCA or vice versa even, but it is still early to tell. On a positive note, there is already a great enthusiasm for the two entities to work together which I foresee won't cause any problems whatsoever. There is a big change happening in construction, BCA doesn't only involve itself in building and construction, but also in change of views so for example if you installed solar panels and you installed insulation on a building, and it got Classified as a class A you must keep that classification and these things. It would have been a bit immature if we had gone out own way and published and we become an individual entity and then a few years after we need to see what to do because BCA is taking care of everything that needs doing with the building and cpd are on their own level. There is also some hardship in the sense of lack of knowledge of fire safety with many of the public looking at FS as just a few fire extinguishers and a smoke detector. That's how the view it so the perception that we go with is, why do you need me to make a fire risk assessment report? What's the use of it. They don't see Fire engineering as a profession that exists. I didn't answer your question, yet I know however I'm trying to get it into context first. In Malta we see the profession of an engineer as very professional in general however not everyone is aware that a FE is a profession. Traditionally if you ask about engineering you have Me and EE, when we (cpd) spoke to different boards, some of them recognize that not all the engineers can sign a fire safety report while on the other hand if we had to use fe only, you will end up with a few people become very wealthy and it will end up dropping the whole industry since there isn't enough people to do the job. We are trying also to come to agreement where an engineer, which at the end of the day has a warrant. If we could introduce some type of diploma through either NFPA, IFA, maybe even locals institution such as MCAST or others and we are able to create a subject which an engineer which has a diploma in fire engineering doesn't mean hes a fire engineer but especially ME would be closer to fe which means we would be in a much better position than we are today were you can go to a mE and he can strictly speaking calculate flows for example of a hydrant for example but he wouldn't have much knowledge on aspects of fire and firefighting. Therefore we are seeing the mistakes that we see today. When we were creating the law which we spoke about earlier, we made a law which is not you are right or wrong, the law says you are broadly compliant to the standard. This is because fire safety is a very vast subject so it could be that you broadly complaint. So overall you have everything okay or overall, you need to arrange certain things to become broadly compliant. There could be situations however where for example you would have to close when for example if you have chains on emergency exits.

Something which there isn't much appreciation to is the knowledge of how powerful the system is for example. You could have the best state of the art fire system compared to another hotel who has a basic system however if the first hotel (state of the art) doesn't have another human system that reacts to a detection of fire, while the other has, the second hotel is better since as soon as a fire is detected hes going to take everyone out of the hotel while if there is no system like in the first hotel nobody does anything. That why I told you fire safety Is vast.

In the context of five star hotels, since most of the hotels which are five star are part of a franchise which is a reality. you cannot just build a five star hotel, you would need a certain brand behind it even local brands which started in malta. The franchise imposes certain level of standard which you have to follow, no matter the size of the outlet. In 5 stars you also find security manager which is usually in charge of fire which could be coming from the standard. His staff would know the hotel inside and out together with maintenance which you don't find in other hotels. Lower star hotels you could find multiple roles given to one person. When the government organises international diplomatic meetings such as chogm and immigration where a lot of prime ministers /VIPs are invited, they target the five-star hotels for accommodation.

In this case even if there is no law, we (cpd) are asked specifically to go and assess the fire safety situation within the hotel, so this happens every few years through that. Apart from that the hotels every year or every two years ask us to come and see things even wanting to pay. Training excerizes are even encouraged in times for example when a wing is being renovated, these happen quite often. This doesn't mean that they are prone for incidents. Hotels have gone through fires many times not because of lack of fire safety but since they provide the whole experience to the guest so Laundry, kitchens, restaurants. The probability of a fire grows and even it is certain that it will affect them at some point. The good thing is that they manage to contain it immediately unless it's a large fire. You can see in these situations their systems working, which in general 5 star hotels are quite satisfactory. Even if I had to pass them by the law which we are proposing they would be broadly compliant however this doesn't mean that there is no room for improvement. There is always small issues but the effort is there from their end.

When you arrive on incidents like these and the manager tells you that everyone is out of the building you can take his word for it not like some cases which we came across where the manager says he doesn't know how many people are inside or worse everyone is out and after 15 mins you see people exiting from the building. 5 star hotels in general are okay, the only difficulty we have which nothing insurmountable, when the franchise is for example American they tend to impose NFPA standards for example where in Malta we use BS 9999, 7974. There are slight differences but we still manage to find some common ground and still they would be compliant with bs9999. They contact the mother company also to let them know that in Malta we another standard and they are similar.

1. **What, in your opinion, do you think are the main priorities a hotel should make when Planning, Implementing and Evaluating a fire safety strategy particularly in a five-star establishment which offers services such as sauna, industrial laundry and 24/7 services. These could include both FF Equipment and Procedures.**

If you ask me how confident I am , I am never 100% confident. I believe that they do implement measures but until we see it and vet it we wouldn't know what is In place. However by enlarge five star hotels all have certain considerations to fire. One of the main things that came out during the pandemic was that the health authorities were telling us to have a manned door, I have 5-6 fire xits which are used also as entrances to the hotel. I can only keep two open, the authorities are saying that they need to be manned and I only have two employees which I can spare for this job, what can we do? Close the others? We needed to find some compramises. This showed the knowledge and the strategy, planning and preparedness is there and they already have a fire plan. Some hotels closed the door but they installed mechanisms that the door automatically open in case of fire. At least during the pandemic it showed us what is in place. Some hotels also closed but I never went into a five star hotel and found something big missing for example they don't have fire detection system or fire escapes, they always had from a to z and maintained. You do ask some and they give you a folder with the plan which is maintained as that is the most important. There are other hotels where you ask him for the plan and they give you 10 files of papers which where also maintained at least but in my opinion im quite sceptical. When I see so much paper work it is difficult to understand how someone will be able to use them in a real emergency. Its better to have two pagers and you know them well rather than having a giant folder to show that you are super prepared. For example the action plans on comah site – control of major accidents and hazards in case of fuels for example. One of the things we are doing is these two pagers where you glance at it and know what to do or whats happening at least, important to also have read it before.its better than giving me a folder to show how prepared I am and to find something it takes forever.

So in an ideal world ,in all set ups no just tourism,we are saying you should appoint a qualified fire safety engineer or a fire safety consultant working together with a FE depending on the size of the building, if its relatively small you can get a fire safety consultant. These will conduct a fire risk assessment and they will see what you need by law and you can plan from there. Let me leave the carpark out for now since that is a subject on its own. If you want to protect the infrastructure of IT in your hotel, you need to be the person to want a CO2 suppression system for example. For me you can have a water fire extinguisher or ,co2 to avoid the danger , only for example because you just cut the power and deal with the incident. This is where business continuity comes into play which in Malta we don't consider nearly enough. How critical is you IT Infrastruture? How important is it to you? Is there a system where you save everything on the cloud so if the server gets burnt down you can still continue operation? Or if it stops the business also stops?we are there to monitor the basics only. In the carpark it is another story since the fire load is extremely large, this is considered what we call a fast moving fire, so if you have a fire in the underground carpark you cannot just say no problem only th cars will catch fire because I will you no problem the building will fall. So there you need to have for example sprinkler systems or something which shows that you are protecting the structure. You could also implement measures where with the fire doors you have installed you have stopped the smoke from entering the building so you have managed

to protect all occupants for the evacuation pahse and so you can let the building collapse after that. Obviously this is not the way to go about it. By enlarge unfortunately, however it is changing, I feel that the Maltese when given laws they try to find the loopholes rather than trying to implement them to better ourselves. These are things we meet unfortunately,they are driven by profits, costs and even if you get a competent person most times sometimes you get persons who will do things in a safe way and everything wil be in line. But you also find the bare minimum being put in place due to cost. If you have two competent persons who are charging the same price but the solution is different in price for example one if 50k and the other 100k. most will choose the 50k although this just passes the standard of the law. It's a reality unfortunately, the majorority of the engineers that we work with are very integral to which you can already know whats coming from a report based on his previous work, obviously we still check them but there are other that you already know what coming . you always find it even with firefighter you have the good and the less good.

2. **What Current Legislation Frameworks are in place for 5-star hotels considering the number of guests and potential risks which these large establishments carry? Do you think they are under/over considered?**

So this is backed by my experience. When you have a certain hotel with a certain brand name, its true they work with skeleton staff at night but the system also helps the staff in the evacuation and they don't have major issues. Even in situations where we go in (offensive firefighting), even since they have a high level of containment, first of all to build a fire star hotel, you don't do it on a size of a block of flats. Let us see the five star hotels we have in malta, most of them have quite a big footprint, strictly speaking they have different wings. If the left wing caught fire I can assure you that the fire will never reach the right wing since there is so much length, compartments and systems in place that even as a distance it would take days to do so. You would need to have nobody on site, the doors all closed and probably it would still self exintguish. Apart from these systems, fire doors and etc also they manage to contain the fire quickly. When you have hotels of lower standards and guesthouses you can see the differences so for example there is only one entrance, the kitchen is shared and in the middle for accessibility to everyone. The kitchen is the most common for a fire to occur that why im mentioning it and its usally close to the exit. So in these cases you have also less staff so you could have one person acting as multiple roles. Most of the time they wouldn't know the head count or even an it system that can print out the head count like in five star hotels. In five stars at the press of a button you can have multiple amounts of information, especially with the key carded doors where you can see if a room is occupied or not. As with regards to legislation, the legislation is going to be there but I feel like its going to do more good to the lesser star rather than 5 star since they are already meeting the standard well. Maltas situation today we are more scared of that mechanic who fixes cars under his house than a large tower on fire. Why? Because although in tower buildings the operation is much greater and dangerous and you need large amounts of staff and equipment , you know that there are certain standards which have been implemented during construction. Also there are certain human systems which safeguard, you don't just walk into a big building like that, generally there is always a log and certain systems. While its not the first time that we entered a garage fire and he has three cars inside with a storage of petrol and tanks of gas. In the perception of a firefighter that is more dangerous in a way. Obviously when we had incidents

in high rise building they are really dangerous but there is a standard at least, even the fire load is controlled to a certain extent. You also have engineers which know where the cut offs, there is certain control not nothing. We are seeing that the law will help by maybe giving more knowledge rather than what im afraid of that it will be seen a taxation. They don't see it as if you have an incident today you can detect straight away and tackle it and the next day you can reopen not you lose the business altogether. I found this in my thesis also that there is this perception that if you have insurance you are okay. Lets assume that you have a business no matter what it is. If you have a business and you had a fire so a serious incident in it, lets assume that the next day the insurance comes with the cheque in hand and the money is available straight away, which is never the case. You still need to fix the premises, special machinery maybe, stocks , you need to fix the rooms in hotels for example and you wont find these thing straight away. You would have to close, you clients will go and stay somewhere else so you will loose customers. 60% of buisnesses who have a serious incident don't open again. 80% of those that do open will fail in the next five years. This is not a local statistic and its abit outdated 10 years but the fact is that insurance will not help you. Although you have habitual clients especially in smaller hotels, the clients which you have moved may have gone to another hotel due to the incident and preferred it there so they would come back. The management also in five star hotels, you will find much more professional people than in a three star hotel for example. In the lower stars you will have people in maangmenet who are self proclaimed in a way that they never attended a manangment course. I have however experienced a 3 star with impecabble management but it was a one off since its not usual.

3. **Do you have any experience (During/Post incident) of any fires within 5 Star Hotels? How did these incidents reflect on the fire safety of that hotel? Could they have been avoided?**

I have had many incidents in hotels even 5 star, the two most common places that we had, however it does not reflet fire safety, they were always two places, the sauna, 7-8 times. Usually it comes down to misuse, mechanical fault or I don't know how to describe it. You have a place where it is made to withstand large amounts of heats, it has very dry wood since its all the time getting dried, obviously you have a serious fire immediately and its always from the unit. I don't believe they are cheap units either, I believe they are serious units and maybe the thermostat gets stuck but over prolonged use they suffer, even sometimes new. We had one recently it was only a few months old, just after a renovation. The other is the laundry, the laundry in most cases is the use of bleach. The use of bleaching agents which are oxidisers which because of hygiene you need to have certain sheets that are washed multiple times and they are constanly giving them bleach to keep them clean and since they are using higher temperature they have what is called spontaneous combustion. It is prone to happen but not something regular. When you have a laundry shoot in hotels that is straight down to the laundry, it is efficient for the operation but it is also very efficient for the fire as well. So when the laundry is placed upstairs it is much better but the staff wouldn't like it much since they have to run around with the laundry. In most cases the laundry is placed in back areas of the hotel close to the loading bay since they are aware of the danger. The fire engines will be able to have direct access also which will tackle the problem quickly. Those are the two most common. In the kitchen you don't have much fires since they are most all trained personell

so by the time we arrive it would have been tackled but yes the laundry and sauna are th most common.

Accessibility: many 5 star hotels are positioned in hard to reach areas or areas where congestion is prone. Paceville and mdina for example. What do you think of the situation that hotels have policies for staff not to tackle fire incidents and rely heavily on CPD arriving in a timely manner, taking into consideration the complexity of such an operation and the amount of resources needed. Ex during Portamaso fire there was a grid lock which closed access to the fire grounds.

Theere is two aspects to this problem, so first of all we always say that if you can tackle the fire with a fire extinguishers tackle it, but if you have even the slightest doubt don't tackle it all and evacuate. It is better to safeguard life and let a room burn rather than the other way round. Its useless putting ourselves down. We like to compare ourselves to large countries to Germany, uk, France but Malta is what it is. We have to take into consideration what I like to call the proximity risk. In Sweden for example they build a footprint of 100sqm, the law says that there must be 200 sqm between a building and another, when the fire brigade arrives they only conduct defensive firefighting (outside) they don't commit people inside to lower the danger. The building falls and there the insurance to cover, that's how the reason, they don't put people in danger. Offensively they commit only when persons are reported trapped. This brings two dangers, the firefighter doesn't have experience and practice on offensive firefighting when inside. We had firefighters where academically it wasn't their forte. They are not idiots by far but academically they are not the best but through experience when they see certain fires they know when it is too risky and will retreat. If you don't give the experience to the firefighters, you will eventually get someone injured. For example if you have a seasoned firefighter that always worked defensively and another firefighter that always worked offensively. When you are going to work together offensively, the defensive firefighter will try to push to the point where they might get injured since there is little experience of the hazards. The Swedish model however doesn't apply. In Malta we have to work offensively since everything is so attached to each other. What we are trying to propose and are doing is that we are accepting the fact that the roads are what they are and the spaces are what they are but then we are looking at the level of fire safety and we are trying to go further than other countries. This will help mitigate the risk. For example in the new law, in the uk an underground carpark you don't need sprinkler system. In Malta we are saying that the bs 9999 stops here but we want underground carparks and even above ground must be covered by fire sprinklers. Either sprinkler per car or protecting the infrastructure. In reality where we are and were the law is there is a big difference.

Hotels which don't have them at the moment are still compliant with the BS9999, they wont be compliant with the new law. In reality it wont be so hard to extend the sprinkler systems since they already have the fire pumps with the capability, you have to take into consideration also the electric cars. Electric cars today contain a very high fire load when they go bad, we are also trying to adapt to this by seeing what will the effct be of having a fire inside a garge with one. One thing that never got contested but there is a law on it is that you should not park an lpg car in a carpark. However I don't think anyone enforces it so yes there this effect, ideally although maltsa is a bit behind, we must accept the fact that we have close proximity.

With regards to dry risers, you need at least 10-20 thousand litres of water, before you can even start firefighting. If a bowser cannot arrive how can this happen?

Although they are dry risers, from what I have seen they all connected with a pump. So connected to resovouirs so most of them although they have a dry riser system which to a certain extent I agree with since if someone opened a main you don't flood everywhere by mistake. Also they have less maintenance, maybe not all but to my knowledge they all have fire pumps. When they do maintenance on the pumps they also message us to cover while maintenance takes place just in case. Obviously like with everything we have had fires where the pump didn't start or worse both failed.

With regards to the level of training, one of the hotels had advanced firefighting in place. They have Breathing apparatus sets, low pressure hoses , branches and other things. All the other hotels had basic fire and risk assessment.

I agree with all the others for the reason that if you take the step to advanced training you must make sure that you keep the standard. You must be sure that the people are up to date. The worst thing that we can have even as CPD is people wearing a BA and running around the fire ground especially without a BA control officer. Its better if we arrive, they tried to do their part, they didn't manage and closed the door and we enter and tackle it. Which happens in most cases. Its better than arriving and you find people who have a ba, they are with the fire team, I never trained except three years ago in the course and an incident occurred. The worst situation is they put on the ba and think they are superman, the only advantage over a fireman is that they know the hotel inside and out but still they don't have the experience and situational awareness. As an incident commander even I make it a point to put on a ba every two weeks to still remain familiar. Im the most person who wont use it but if I ever need to use it, I need to be competent. After a while obviously its like a bicycle you can remember it since its engrained but I prefer hotels have basics and scared rather than being overconfident. Im not saying hes doing bad because I don't know the circumstances but if training is not done it is creating more danger than good. You must make sure that what they tell you and what happens it reflected in your thesis. In reality five star hotels pester us a lot to come and train at their premises and visit in a good way but since the responsibilities of cpd have grown there is limited time. It's a healthy relationship but they have always been open to training scenarios.

What is classified as a high rise building according to CPD?
Anything above 6 stories – 18m is what we use as a classification. But you have to define between a block of flats and a hotel. We recommended that anything above 18m has a dry riser and after 13m sprinkler systems or something like that. So there are these measures.

4. **What do you think is the way Forward in prioritizing and maintaining Fire Safety?**

I believe that they should remain as is rather than change, the most area in which I want them to improve, for them as such is business continuity. Fire safety they have already made the grade. Business continuity they don't have or most of them. If they do have they have a

corrupted version of business continuity. What im saying is from my experience a lot of hotels and establishments on a commercial basis, once they have a fire, the question will be, what will I do now? Can you help me clean? But the cpd will return the structure to a "safe status". So that there is no more danger. The investigation of the police takes place but if there is no injuries of deaths they will no interfere in the clean up. I realise that they are hotels or even homes of a certain calibre when during the fire he was already on the phone organizing relocation of guests. They already had agreements between them so they are already perceived as serious businesses who have a plan. Not they thought till the fire and it stops there. They went ultra this and this is where business continuity comes in. You have to keep in mind that in Malta if you have a fire in a hotel, the experience that you will give to the guest is marketing. On a particular incident at the fortina, because we left them for two hours in the sun until we dealt with it, I approached the tourists and explained that I understand the situation but I prefer if we put you in a hotel which we know is safe rather than just let you enter so there will be no complaints. The feedback from that was overwhelming with understood and thanked us for our work. it's a question of marketing of malta. If someone dies inside a five star hotel due to a fire it will be on international news for sure. You will have consequences on Malta then and that's why there should be fire safety is there but we should focus now on business continuity.

Hilton has a system in which all HODs have an app which reports to HILTON UK. From that command they evaluate and feed information to the news agencies to limit the damage done to the brand. Even the emergency procedure is all on the app giving instruction on what to do.

I didn't know about it but there is a good media plan which is good to hear. From my experience the five star hotels in Malta were never caught off hand. I always see post incident the gm and even the chef beginning the process of what to do next. Its not ideal but it's a starting form. There was a particular hotel where it was a one man operation, due to this as soon as they got hit with an incident (flooding) he did not know what to do. He was running around with the squeezer but in reality he had no sense of the situation. People where trapped In their rooms with the water level rising nearly to the plug level. This is what mostly worries me.

From personal experience at a weekend break a good example of business continuity was offered to me. On arrival we were notified that the pool was not in service, to remedy this issue a van was set up to transfer guests to a nearby hotel of the same standard every 20 minutes. My point is that agreements between these hotels shows even with fire safety, your protected. The level is so high of service that these agreements are very beneficial. This level of safety justifies also the price since you are paying high amounts to ensure your safety.

EXTRA: Education is key. A common problem that can be found within the maltese is the fact that when buying a property, we buy the property that is the maxmum our budget can handle. After we do this we look to see how we are going to fill it up. Unforetunatly fire safety is left to the end and when a fe comes and starts requesting certain things such as fire pumps, fire doors which can amount to a lot of money, they don't know where to begin and start cutting

corners. There isn't the mentality where we can spend a little less on the building itself and spend the remaining money on fire safety.

What do you think of alberta being the sole company that is mainly in charge of fire safety in hotels in malta. This is across the board.

I think alberta is kind of a nike brand for fire safety and security. They offer a service which is added, 5 star when compared to others. The misfortune of the other companies is that nobody can essentially provide anything near the same level. On a personal experience of them on a high rise building, we instructed the contractor to implement a firefighting system straight away because of the height especially when you pass the 8-9th floor. If there is no system in place we will not be able to extinguish, its not possible. If the shuttering catches fire of the concrete or even machinery the only thing we can do is make sure everyone evacuated. Upon inspection at a later date cpd found the contractor installed two household pumps with two acorn pipes going up the building. At 20 stories up the pressure is barely even capable of reaching the hose. After this alberta was involved and they had installed a state of the art system. No doubt the cost would have been extremely high but they are the king of the hill at the moment and nobody is close to them. Something like fire doors also, alberta is one of the few companies which take responsibility for their work. If they notice a leak in the compartmentation for example a hole on top of the door frame, there is no way that they will install the fire door. I am also scared abit of an open market in the sense that when you have a lot of companies with a tight cut throat competition, the quality decreases. It would have been nice if there was 2 or 3 like alberta but the current situation isn't at a discrepancy of quality.

9.5.6 Enforcement Interview

Enforcement Interview

Could you describe your job and role within the institution?

As an entity our job is to withhold inspection on the place of work, so we start from construction to offices, hotels, factories and my job is to do inspections on hotels mainly 5,4,3 star.

How does this translates to public fire safety?

So, technically our law which is 424 of 2002 Health and Safety Act Always talks about the place of work, in respect of the employee. Part of it obviously includes fire and what measures should be taken into consideration. There is about emergency routes and first aid and fire detection. There are more as well. The law applies to every place of work and anyone who could be affected by it. The main concern for us , is the employee so in context of a hotel if you tackle the issue of fire, without being written, automatically we are also applying the law to guests. Apart from us there is also the civil protection department. so we check for example if there is supposed to be fire extinguishers but when you see in the law that a competent person has to verify, we ask cpd for their opinion, we never work against each other or contradict.

What, in your opinion, do you think are the main priorities a hotel should make when Planning, Implementing and Evaluating a fire safety strategy particularly in a five star establishment which offers services such as sauna, industrial laundry and 24/7 services. These could include both FF Equipment and Procedures.

In 2017, when there was the last inspection of hotel, now not just 5 star but all of them. From the report which I can give to you. These are the results from that campaign. We do campaigns like this because since we have so many workplaces. It is impossible for us to go to the hotels every year, there is so much construction for example and offices to toilets, everything we have to go to. So every year we start a campaign to inspect a certain area, obviously if a complaint comes in at any point we go immediately to inspect. Last time we did it was 2017-18, it took longer since there was so many. 101 hotels employed between 5-500 employees so the five star is definitely included in that sector, we see this because of the risk assessment.

Do you carry out the risk assessment?

The risk assessment, yes is in our hands, the hotels do it by law but we just check that they have it. The law says that were you have 5 employees of more a risk assessment must take place. On fire, they all had fire extinguishers, only two had extinguishers that were out of date which is good. No hotels had no fire alarm installed, the fire drill we have 21 that didn't do it and 30 that didn't log the fire drill. So 9 of these said they did the fire drill for nothing since if it isn't logged there's no way of looking at the performance. One hotel didn't have emergency signage. 6 hotels didn't have emergency procedures documented which is very good, here we are saying the 2 star hotels and 1 star hotels. As an inspection we don't really look at the stars, we are mainly focused on the employees. Emergency personnel trained, there was five only

that didn't have, emergency lighting was installed in every hotel. And finally 11 hotels didn't have fire training given.

Are these numbers worrying in your terms?

Regarding fire extinguishers and fire alarms, we are happy. Regarding the drill, the fact that you have 30 hotels in Malta that did not do a fire drill, yes is very worrying. But it is a very high probability that we are not talking about the five star hotels due to higher standards.

What happened when a hotel is found in breach?

Depends on the risk, if its something minor fore example you have one month to fix it, we go go back and check to see that it was done. If it is imminent danger we take immediate action even closure. All cases that do not follow the instructions are then taken up to in this campaign, all the hotels that were found in breach had legal action taken against them. The reason being that we have given multiple chances for them to regulate prior to the campaign. It is impossible to go back and check them because we are not able to keep the time limits we impose on them, so we decided to take legal action. If today I go in a 5 star hotel because there is a complaint about diesel smell or something in the stores or something about manual handling, it could be that its something new so I give them a chance, but if its something like they are not doing a fire drill, apart from me ordering them to do it we take action legally. But at least I know its done.

1. **What Current Legislation Frameworks are in place for 5-star hotels considering the number of guests and potential risks which these large establishments carry? Do you think they are under/over considered?**

These are the minimum health and safety standards, when we came into EU these were implemented. Technically these last years we never had an incident due to carelessness of fire so I think it covers well the law. A five star hotel sees the risk, even because of insurance. This at the end of the day is an investment. Even equipment that needs to be installed like dry risers but that is seen by CPD. In malta also it is very rare that a building completely catches fire. Its not like England you have a whole tower block catch fire. Maybe in 10 years time we meet again and it might be a different story mind you. But till now we are building with materials such as bricks, concrete which is difficult to spread fire, it contains it in a way. The most common are electrical fires, in Malta we get a lot of smoke and a small fire from the plug and it ends there while in the Uk for example it is surrounded by wood which would start a serious fire quickly.

2. **Do you have any experience (During/Post incident) of any fires within 5 Star Hotels? How did these incidents reflect on the fire safety of that hotel? Could they have been avoided?**

So we don't go and investigate fires because that the job of cpd. We enforce the preparedness of the building not why certain fires happened. If however an employee gets injured due to fire, then yes we will go in and investigate. MTA also investigates there part on fire to protect the tourist. We see our part for the employee.

What do you think is the way Forward in prioritizing and maintaining Fire Safety?

I THINK a policy should be implemented, because in Malta after an incident happens we see what to do afterwards, 1 we need to see when we are building a new tower block for example if a hotel is going to be built in it or no. we need to see if we have fire engines that are capable of meeting the volume of water to reach the top floors of the building. If for apartments its another story but till now in Malta the highest hotel is Marriott with 13 stories. We need to prepare by having equipment that is capable of saving lives and also putting out the fire. Till today we have but in future I'm sure that we will need to invest in other equipment. Fire risk assessment should be done alone. Many of the hotel have it incorporated in the common risk assessment but there are others who get an expert from abroad and conduct a separate risk assessment for it. Today also insurance request it. Sometimes we go to hotels to try for example fire doors. On top they have a button to test the deactivation of the magnet. Sometimes they don't close. By time the carpet not fitting well anymore or the door slumped down by time, when the alarm sounds and they are supposed to close they don't thus not giving their purpose. This happens because of lack of maintenance, by time its normal. Again however we never had big accidents but we still try enforce them all. Not even if we had a lot of staff, mta for example have restaurants, hotels and apartments only. Before covid they used to go much more. Today the system is broken so that needs to come back into place. For example for old people's homes, they have their own authority which check every year their properties. They have people allocated.

Do you think OHSA should appoint two people to hotels?

The law of ohsa is for all workplaces, we could appoint two people to hotels but if we don't have so much issues with hotels why would we put them there? In the last campaign it showed that we are not bad. If the situation was bad and for example many hotels didn't have the basics then yes. But we think that those are settled, we have to move on now to the monster that we have in Malta, which is construction. When you look at the report, do we really need to go back and check again? They should have learnt, in 15 years we had two campaigns, we found some breaches, we took action. Maybe on drill we could push more but these could have been small hotels which are soon closing or going to be demolished so they have no intention of continuing.

We are looking at other risks now relating to manual handling which will be out next campaign in hotels. Fire at the end of the day is important, when we are at the hotel we always check no matter what, we ask for the fire drill reports, fire extinguishers we take samples, generally if you take two and they are well services and in date then the rest of the hotel should follow up. The fire doors we check since they are very important and we are happy with that.

9.6 Legal Notices and Acts

9.6.1 LN 351 of 2012 (Malta Travel and Tourism Act)

4	PUBLIC AREAS	
4.1	**Reception/Lounge Area**	
4.1.1	Reception/Lounge area	M
4.1.2	Reception/Lounge area to be supplied with a desk or counter to service guests	M
4.1.3	Reception/Lounge area with seating and information display facilities	M
4.1.4	Receptionist/responsible person on duty able to speak English and to attend to guest needs	M
4.1.5	Responsible person on site available at least for six hours daily	M
4.1.6	Responsible person accessible by phone during the hours when not available on site.	M
4.1.7	Prominent display in Reception/Lounge area of reception opening times and name and availability of responsible person on site	M
4.1.8	Prominent display in Reception/Lounge area of 24 hour contact phone number and name of responsible person	M
4.1.9	Prominent display in Reception/Lounge area of 24 hour emergency contact numbers for ambulance, fire, police and medical practitioner.	M
4.1.10	Prominent display in Reception/Lounge area of location and availability of First Aid box	M

4.2	**Corridors, passages, staircases and other common areas**	
4.2.1	Prominent display of directional signage to emergency exits, fire hydrants, First Aid box, bedroom, lifts, reception and other facilities.	M
4.2.2	Ventilation system: natural or mechanical	M
4.2.3	Corridors and staircases to be free of any obstruction impeding rapid easy emergency access	M
4.2.4	General lighting to enable correct vision in all areas	M

9.6.2 SL. 10.40 (Maintenance at Good order at Places of Entertainment)

(4) The Commissioner may prohibit smoking in those areas of a place of entertainment or of a concert venue not having adequate fire-fighting precautions as approved by him or not having adequate ventilation as approved by him. These area shall also be indicated by appropriate notices.

9.6.3 SL. 409.15 (Catering Establishment Regulations)

9	**FIRE SAFETY**			
9.1	**Safety**			
1	Specification of maximum covers (number of persons) in each enclosed public area			
2	If applicable: emergency rules clearly displayed next to lift and other areas			
3	Emergency signs and exit signs visible day and night			
4	Evacuation ways kept clear			
5	"No Exit" signs displayed on non evacuation doors			
6	Performance of an evacuation staff exercise: minimum once each year			
7	Emergency and evacuation notices for staff			
8	Establishments to maintain shortest designated exit route			
9	Emergency lighting in good functioning order			
9.2	**Fire safety**			
1	First aid fire fighting equipment available to service all areas			
2	All first aid fire fighting equipment kept in good working order, last revision is indicated			
3	All fire fighting equipment is easily accessible			
4	"No smoking area" sign in danger areas			
5	Automatic fire alarm			
6	Fire retardant containers for refuse area			
7	Certificate of maintenance and repair of fire fighting equipment by professional person			
8	All staff shall be trained in the use of fire fighting equipment			

Fire safety.

13. Licensees of catering establishments shall be in possession of a fire safety certificate issued by the competent Authority confirming compliance with fire safety standards.

Duties of employers.

6. (1) It shall be the duty of an employer to ensure the health and safety at all times of all persons who may be affected by the work being carried out for such employer:

(2) The measures that need to be taken by an employer to prevent physical and psychological occupational ill-health, injury or death, shall be taken on the basis of the following general principles of prevention, that is by -

(*a*) the avoidance of risk;

(*b*) the identification of hazards associated with work;

(*c*) the evaluation of those risks which cannot be avoided;

(*d*) the control at source of those risks which cannot be avoided;

(*e*) the taking of all the necessary measures to reduce risk as much as reasonably practicable, including the replacement of the hazardous by the non-hazardous or by the less hazardous;

(*f*) giving collective protective measures priority over individual protective measures;

(4) It shall be the duty of an employer to ensure that at work places wherein a sufficient number of workers are employed, there shall be elected, chosen or otherwise designated a person or persons to act as the Workers' Health and Safety Representative or Representatives, and who shall be consulted in advance and in good time by the employer on matters which may affect occupational health and safety.

Emergency routes and exits.

7. (1) The employer shall take all the necessary steps to provide and maintain suitable and sufficient emergency routes and exits so that in the event of danger, workers and all persons therein can evacuate all the workplace and all parts thereof quickly and as safely as possible.

(2) Without prejudice to the generality of subregulation (1), the employer shall ensure that emergency routes and exits:

(*a*) are kept clear at all times, and lead as directly as possible to a safe, open air, specifically designated area outside the premises, which shall be on the ground floor:

Provided that no lift shall be used as an emergency route unless such lift has been certified by a mechanical engineer as being safe to be used in emergencies:

Provided further that all traffic routes and doors giving access to such emergency doors and exits shall also be free from obstruction so that they can be used at any time without hindrance;

(*b*) are of appropriate number, distribution, dimensions and layout, taking into consideration the use, equipment and dimensions of the workplaces and the maximum number of persons that may be present;

(*c*) if they require illumination, are provided with emergency lighting of adequate intensity in case of

failure of the normal lighting system;

(*d*) are indicated by adequate luminescent directional signs which shall be placed at appropriate locations, at a height of not more than three point five metres and not less than two metres from the floor level, and which are maintained in a good state.

Emergency doors.

8. (1) The employer shall ensure that emergency doors:

(*a*) open outwards;

(*b*) shall not be so locked, fastened or obstructed that they cannot be easily and immediately opened by any person in the workplace who may require to use them in an emergency;

(*c*) are appropriately maintained;

(*d*) are made of fire-resistant material of suitable and sufficient fire rating.

(2) The employer shall ensure that sliding or revolving doors are not used as emergency exits.

First aid, fire detection, fire fighting, evacuation of workers, serious and imminent danger. *Amended by: L.N. 437 of 2012.*

9. (1) It shall be the duty of an employer to take the necessary measures for first aid, fire-fighting and evacuation of workers in the event of serious and imminent danger:

Provided that the measures which are to be taken shall be adapted to the use of the building, the nature of the activities and to the size of the workplace:

Provided further that the measures taken shall take into account all persons present or who may be present at any time, as well as the physical and chemical properties of the substances present.

(2) The measures that are required to be taken by an employer in the provision of first aid at work, shall be in conformity with the Work Place (First Aid) Regulations.

S.L. 424.13

(3) In the pursuance of the foregoing, an employer shall make such necessary arrangements with services outside of the workplace, particularly as regards emergency medical care, rescue work and fire-fighting.

(4) An employer shall designate workers who shall be responsible for the implementation of the measures required for fire-fighting and for the evacuation of workers. The names of the persons thus designated shall be entered into a register to be kept at the workplace, and the register shall be maintained and amended as necessary by the employer:

Provided that the number of persons designated for these purposes, their training and the equipment available to them shall be adequate and shall take into account the size of the workplace and the nature of the hazards present therein.

(5) An employer shall as soon as possible inform workers who are, or may be exposed to serious and imminent danger of the risk

involved, and of the steps to be taken or are to be taken with regard to protection.

(6) An employer shall take action and give instructions which would enable workers in the event of serious, imminent and unavoidable danger to stop work and, or to leave immediately the work place and to proceed to a place of safety.

(7) An employer may not ask workers to resume work in a working situation where there is still a serious and imminent danger, except for the purpose of instituting protective or remedial action:

Provided that in the situation referred to in the foregoing, only workers who have the necessary training to carry out such protective or remedial action shall be allowed in the area of danger, and they shall be suitably and adequately protected at all times.

(8) No worker who leaves his workstation or a dangerous area by reason of the presence of justifiably serious, imminent or unavoidable danger, may be placed at any disadvantage because of his action by his employer, and no harmful or unjustified consequence may be taken against him.

(9) An employer shall ensure that all workers are able, in the event of serious and imminent danger to their own safety and, or that of other persons, and where the immediate superior responsible or any worker designated for the purpose of implementing measures for fire-fighting and evacuation of workers cannot be contacted, to take the appropriate steps in the light of their knowledge and the technical means at their disposal, to avoid the consequences of such danger:

Provided that any worker who takes any action in the light of the foregoing, shall not be placed at any disadvantage, unless he acted carelessly or there was negligence on his part.

(10) It shall be the duty of the employer to take all necessary measures to the satisfaction of the authority responsible for the enforcement of fire safety, to:

(*a*) prevent, so far as reasonably practicable, the risk of accidents which may be caused by fire or explosion from any combustible, inflammable or explosive substances present at the workplace;

(*b*) ensure that the workplace is equipped at all times with suitable and sufficient fire-fighting equipment and with fire detectors and alarm systems, as necessary, taking into account the dimensions and use of the buildings, the equipment they contain, the physical and chemical properties of the substances present and the maximum potential number of persons present.

(11) Any non-automatic fire-fighting equipment provided by the employer shall be:

(*a*) easily accessible;

(*b*) simple to use;

(*c*) appropriately indicated by easily visible safety signs,

which shall be placed at appropriate points, and regularly maintained.

(12) The employer shall inform his workers of any fire risks present, and of the measures required to minimise such risks.

(13) The employer shall ensure that workers are adequately instructed and trained as appropriate in the proper use of fire fighting equipment as may be required for that work place by the Civil Protection Directorate.

(14) The employer shall take all necessary measures to ensure that all fire fighting equipment at the workplace is subjected to a suitable system of maintenance to the satisfaction of the Civil Protection Directorate.

(15) The employer shall ensure that fire drills are carried out at least once every six months and a record kept of these drills:

Provided that a person competent in fire safety and recognised as such by the Civil Protection Directorate, may, at the explicit request of an employer, and after analysing the prevailing fire risks and the occupancy of that specific place of work, determine a different frequency for that employer's workplace, which in any case shall not be longer than once every twelve months. The recommendations made by such a competent person should be documented in writing and kept by the employer together with the record of the fire drills. Workers' health and safety representatives shall be given the opportunityof being consulted on the frequency of these fire drills.

(16) It shall be the duty of a worker to notify his employer of any fire which breaks out at the workplace, and the empþoyer shall investigate the occurrence with a view to taking any action which is deemed fit to prevent any similar recurrence.

(17) Nothing in this regulation shall debar the authority responsible for the enforcement of fire safety from making any recommendations it deems fit in the interest of health and safety.

Areas where smoking is not allowed.

28. (1) The employer s]all identify those areas in which smoking could cause a risk of fire or explosion, and he shall ensure that smoking is not allowed in such areas.

(2) The employer shall identify areas, which are physically separate from other areas where smoking is allowed, in which smoking is prohibited, so as to protect non-smokers against discomfort caused by tobacco smoke.

(3) The employer shall put up appropriate signs indicating that smoking is prohibited in those areas in which smoking is not allowed.

(7) Revisions to approved documents may arise from the proposed minor amendments, such as amendments to Fire Safety and Ventilation Reports, Accessibility Audit Reports, Restoration Method Statements, or conditions set out by other authorities or Government Departments. In such cases, the relevant clearance should be sought by the Executive Chairperson from the relevant consultee. The relevant consultees are to reply within fifteen days, failing which it shall be considered that no objections arise from the revision. No late submissions will be accepted. A notification to the consultee that proves the date of late submission shall be uploaded on the electronic system.

"certificates of compliance" means documents issued by a *perit* or warranted engineer, to certify that a building or works conform with building regulations;

"fire consultant" means any person or firm who, after applying to the Director, Building Regulation Office and presenting to the said Director diplomas, certificates and other evidence of formal qualifications indicating the holder's professional knowledge and experience in fire safety engineering, is accepted and registered by the Director as a recognised fire safety consultant;

for each day the offence continues.

(4) Any person who is convicted of an offence under article 16(4) may also, at the request of the prosecution, be disqualified from signing and submitting to the Director, Building Regulation Office, for a period not exceeding two years from the date of conviction for the offence, certificates of compliance or fire safety certificates, or any other certificate required in accordance with this Act or any other regulations made thereunder and, accordingly, the Director, shall not accept certificates for registration which are signed by a person while so disqualified.

5. Fire precautions including -

(*a*) resistance of the structure to the outbreak and spread of fire;

(*b*) means of escape in the event of fire and measures to ensure that such means can be effectively and safely used at all times;

(*c*) services, fittings and equipment designed to facilitate fire fighting to mitigate the effects of fire, for the early detection of fire and to provide warning in the event of fire.

Figures

Figure 1: A picture containing 4 systems which are in Place at one of the Five-Star Hotel; Fire Curtain which is hidden in the ceiling and upon activation protects the staircase, Sprinklers protecting the fire curtain, HVAC system outlet and a smoke detector.

Figure 2: Four Fire alarm Panels and a break glass unit to contact managers.

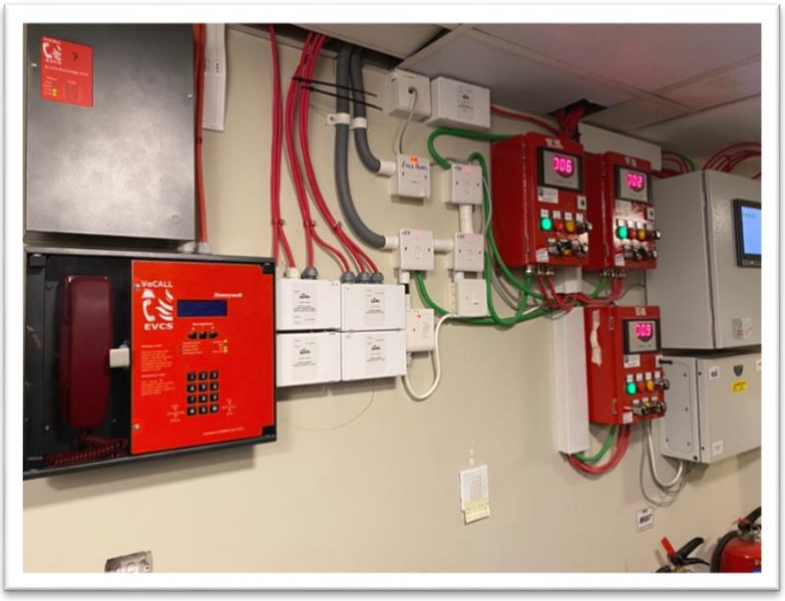

Figure 3: Control Units of a stair pressurization unit together with an EVCS call system.