

FIRE AND RESCUE INTERNATIONAL

Integrated fire, rescue, EMS and incident command technology

Volume 4 No 2



29 Oct - 3 Nov 2017

Expo Centre NASREC, Johannesburg

CLIMATE CHANGE AND THE EMERGENCY SERVICES

The 31st SAESI Conference, Exhibition, Training Events and Challenges

CONFERENCE

EXHIBITION

TRAINING

CHALLENGES

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**THE LARGEST EMERGENCY SERVICES
CONFERENCE AND EXHIBITION IN AFRICA**

The programme will include:

- Conference
- Exhibition
- Gala dinner
- Cocktail evening
- SAESI EXCO meeting
- Fire Fighter Challenge
- Vehicle extrication
- High angle rescue
- Emergency medical rescue
- Incident command system
- Badge swapping evening
- World record attempt
- Meet and greet
- And much more!!

Save the date!

Conference programme, exhibition layout and details on the training events and challenges will be released shortly

For more information contact the organiser

Lee Raath-Brownie at Fire and Rescue International

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Organiser

**FIRE AND RESCUE
INTERNATIONAL**

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Comment

We are proud to present our 38th edition of Fire and Rescue International (FRI). Enjoy the read!

Southern African Emergency Services Institute (SAESI) News

A message from SAESI president, Dino Padayachee leads the latest news from SAESI, which is followed by the Code of Ethics and Conduct. We also met up with the City of Cape Town's extrication team at OR Tambo prior to them presenting South Africa at the World Rescue Organisation Extrication Challenge in Brazil.

Erratum

For the first time in many years of publishing, the printer's gremlin stuck its head out and we have to apologise for the confusion created by the incorrect volume number published on our previous front cover. It should have read Vol 4 no 1. Our sincere apologies for the error!

In the news

The news is dominated by the September 11 commemorations and the recently held eThekweni Grinder Challenge in Durban. We provide some insight to a recent Wilderness Search and Rescue incident and congratulate Bronwen Jones, founder of Children on Fire, on receiving the British Empire Medal.

Emergency services response to acts of terror

Colin Deiner looks at the intricacies around response to terror attacks, highlighting issues around risk assessment and the relevant response to explosions, armed attacks and CBRNE incidents. Deiner reiterates the importance of the use of a national incident command system.

Fire service profile

We visited Okhahlamba Emergency Services in Bergville, KwaZulu-Natal and spoke to Chief Freddie Halgreen to see what challenges are faced by a small, rural fire service.

Post-traumatic stress disorder (PTSD)

In this second part of the new series focusing on PTSD, Mike Webber looks at how PTSD is treated. PTSD is real. Let's talk about it.

Fire safety

Rodney Eksteen unpacks the prevention of fire deaths in human settlements. Eksteen, together with the Western Cape Government, has done extensive research on the prevention of fire-related deaths and injuries in informal settles.

High-rise fires: extending hose lines for initial attack

Ian Schnetler looks at command strategies in this final part on fires in high-rise buildings.

Wildfires: firebreak construction

Rob Erasmus explains the methodology of making firebreaks and looks at the practical aspects of fire prevention.

Fire station planning principles

In this last part of Previn Govender's series of articles on fire station planning principles, Govender discusses the practicalities of choosing a site.

Rescue roundup

Neville van Rensburg and Julius Fleischman provides some insight into extrication techniques and how to look at the vehicle for information.

We value the support of our contributors, readers and advertisers. Thank you for making the magazine possible! Fire and Rescue International is your magazine. Read it, use it and share it!

Lee Raath-Brownie
Publisher



Lee Raath-Brownie

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R520 per annum

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This month's FRI images winner!

Congratulations to

Maryka van Staden for her photograph 'Windscreen removal' taken with a Canon SX160. No lens and setting details available.

Maryka van Staden wins this month's prize money of R 2 000!

Photo description:

The photo was taken while windscreen removal was done using a sledgehammer. The picture indicates the displacement of glass and fine glass powder.

Well done!

Submit your rescue, fire or EMS photo and win R2 000!



Fire and Rescue International's (FRI) monthly photographic competition is open to all its readers and offers you the opportunity of submitting your digital images of fires, fire fighters, disasters, emergencies and rescues.

The rules are simple:

- All photographs submitted must be in jpeg format and not bigger than 4 megabytes.
- Photographs must be in high resolution (minimum 1500 pixels on the longest edge @ 300dpi) for publishing purposes
- **Allowed:** cropping, curves, levels, colour saturation, contrast, brightness, sharpening but the faithful representation of a natural form, behaviour or phenomenon must be maintained.
- **Not allowed:** cloning, merging/photo stitching, layering of two photos into one final frame, special effects digital filters.
- Fire and Rescue International (FRI) reserves the right to publish (printed or digitally) submitted photographs with acknowledgement to the photographer.
- Winners will be chosen on the merit of their photograph.
- The judge's decision is final and no correspondence will be entered into afterwards.
- Brief description should accompany photo.

Entries must include:

- Name of photographer
- Contact details (not for publishing)
- Email: (not for publishing)
- Name of photograph
- Brief description of photograph including type of fire
- Camera, lens and settings used

All entries must be emailed to:
lee@fireandrescue.co

>>ENTER NOW!



SAESI President's comment



Dino Padayachee

the second SAESI 2017 Conference, Exhibition and Training Challenges to be held from 29 October to 3 November 2017, it is the vision of SAESI to acknowledge the vital role and participation of its members in making such an event a success. Yes, you read right, it is the second SAESI owned conference but the 31st in the history of the institute.

It is with this in mind that the Events and Marketing Working Group and the Board of Directors launched a competition amongst the members for submissions on the overall theme for the 2017 conference, exhibition and training challenges.

From the submissions it was encouraging to see the unity amongst members and the concerns for the fire and emergency services overall in ensuring the

longevity of the fraternity and continued service delivery. After due consideration the theme was pronounced and it gives us great pleasure to announce the theme for the SAESI 2017 Conference, Exhibition and Training Challenges to be, 'The Effect of Climate Change on Emergency Services'.

It was therefore decided to acknowledge all the participants, who submitted their theme suggestions, in the near future with a gift set in recognition of their submissions and contributions. I would therefore like to thank the following members for their contributions: Pieter Rudolph, Dino Levendall, Morgan Molobi, Morné Mommsen, Monica Rudolph, Narend Birjalal, Morné Haskell and the vice president, Melvin Ramlall.

Dino Padayachee, president, SAESI

Whilst the Southern African Emergency Institute (SAESI) is hard at work in planning

South African Team heads to WRO Extrication Challenge 2016



World Rescue Challenge team and WRO assessors

A team of eight City of Cape Town fire fighters attended the World Rescue Organisation's Extrication Challenge 2016 in Brazil, representing South Africa. The extrication challenge, which started on 19 October 2016 and concluded on 23 October 2016, was held at Barigui Park in the city of Curitiba, Parana in Brazil. The challenges consist of extrication and trauma and include rapid, standard and complex extrication. The team comprised of Morné Adrian Haskell, Virgel Randell Cloete, Gershwin Cloete, Warren Frank Sam, Michael Holster Gardiner, Keenan Peter Walters, Kirk Ogilvy Wernars and Arlene Fiona Wehr, vice-president elect for the Southern African Emergency Services Institute (SAESI). WRO assessors Neville van Rensburg, Julius Fleischman and Richard Botha are also in Brazil.



SAESI Code of Ethics and Conduct

Since the registration of SAESI as a non-profit company in 2014, the institute have taken several bold steps in aligning its business practices with prescribed acts as well as precursors like the King III and King IV Report on Corporate Governance.

Regardless of whether SAESI is legally mandated to have a code of ethics and conduct, the institute wholehearted committed to the establishment of a code of ethics and conduct. This code has value as both an internal guideline and an external statement of corporate values and commitments.

A well-written code of ethics and conduct clarifies the company's mission, values and principles, linking them with standards of professional conduct. The code articulates the values the institute wishes to foster in its leaders and employees and, in doing so, defines desired behaviour. As such, it is a measurement against which individual and organisational performance can be measured.

Additionally, the code is a central guide and reference for employees and members alike, to support decision making on behalf of the Institute.

Furthermore the code serves several important purposes such as:

- Compliance: Legislation requiring prescribed officers to implement said codes or clearly explains why they have not.
- Marketing: Where the Code of Ethics and Conduct serves as a public statement of what the company stands for and its commitment to high standards and right conduct.
- Risk mitigation: A company with a Code of Ethics and

Conduct can reduce the financial risks associated with government fines for ethical misconduct by demonstrating they have made a 'good faith effort' to prevent illegal acts.

Code of Ethics and Conduct

This document is developed in accordance with the provisions of section 15(3) of the Companies Act 2008 and must be read together with the Memorandum of Incorporation (MOI) and forms part of the Company Rules on Ethics and Conduct.

Introduction

1.1 SAESI is committed to a culture of ethical behaviour and integrity in the conduct of its business. [King III, principle 1.1, paragraphs 12 and 13]

1.2 This code is based on the ethical values of responsibility, accountability, fairness and transparency that underpin good corporate governance. [King III, principle 1.1, paragraph 14]

1.3 The ethical standards set out in this code must be integrated into SAESI's business strategies and operations. [King III, principle 1.3, paragraph 44, King III Practice Note: Ethics Management, pages 5 and 6]

Application of the code

2.1 This code applies, unless specifically stated otherwise or if the circumstances or context require otherwise, to all the:

2.1.1 SAESI employees;

2.1.2 Directors of the company and

2.1.3 Prescribed officers, office bearers and includes the CEO, all of whom shall be collectively referred to as the "applicable persons".

2.2 If any applicable person is in doubt about the application of this code to them, they must discuss this with the person ►



- ▶ to whom they report, the chief executive officer of the company, the executive committee or the chairpersons of working groups and branches as applicable.

Purpose of the code

The purpose of this code is to promote and encourage ethical behaviour within SAESI and to prevent, report on and deal with instances of unethical behaviour. To this end, this code sets out the ethical standards, rules and guidelines with which the applicable persons should comply. [King III, principle 1.3, paragraph 41]

Compliance with laws, regulations and the code

4.1 It is SAESI's policy to comply with all the applicable laws and regulations of all the countries in which it operates. [King III, principle 6.1, paragraph 1]

4.2 All applicable persons should familiarise themselves and comply with the company's legal compliance policy. [King III, principle 6.2, paragraph 13, principle 6.4, paragraph 20]

4.3 The applicable persons should accordingly endeavour to ensure that their conduct does not constitute or is not perceived to constitute a contravention of any applicable law. Any such contravention will not be tolerated.

4.4 To this end, all applicable persons should comply with the code. Accordingly, SAESI must:

4.4.1 Ensure that the provisions of this code are communicated to all the applicable persons and [King III, principle 1.3, paragraph 48, principle 6.4, paragraph 21]

4.4.2 Educate and train SAESI employees and prescribed officers on the ethical standards to which SAESI commits itself in terms of this code. [King III, principle 1.3, paragraph 48, principle 6.4, paragraph 21]

4.5 It is the responsibility of the administration work group to ensure that all new SAESI employees and prescribed officers are made aware of this code and that the education and training referred to in paragraph 4.4.2 is provided. Further, SAESI should ensure that existing office bearers and employees acknowledge in writing that they have received a copy of this code.

Conflict of interest

All the applicable persons must perform their duties and functions honestly and in the best interests of the company and should not place themselves in a position, which would result in a conflict or perceived conflict between their personal interests and the interests of the company, provided that in certain instances, such conflicts of interest may exist or arise, in which event such conflicts must be

disclosed and dealt with in accordance with the relevant laws, rules, regulations or policies of the company, as the case may be. [King III, principle 2.14 (in relation to directors)]

5.1 Outside activities, employment and directorships

5.1.1 Although SAESI employees are encouraged to participate in religious, charitable, educational and civic activities within their communities, they must avoid participating in any activities which would:

- (a) Consume their time, attention and energy to such an extent that their ability to carry out their responsibilities or perform their functions within SAESI is adversely affected or
- (b) Result in a conflict of interest as contemplated in paragraph 5.

5.1.2 No SAESI employee may be employed by any person other than SAESI without the prior written approval from the Board of Directors.

5.1.3 SAESI employees may not hold outside directorships without having obtained the prior written approval from the Board of Directors.

5.2 Gifts, hospitality and favours

5.2.1 Conflicts of interest may arise where SAESI employees and prescribed officers are offered gifts, hospitality or other favours, which may or could be perceived to influence their judgement in relation to business transactions concluded by SAESI.

5.2.2 No SAESI employee must accept gifts, hospitality or other favours from suppliers of goods or services or from any person with whom SAESI has a business relationship in return for any kind of preferential treatment, business, contract or favour offered by such SAESI employee or prescribed officer acting on behalf of SAESI.

5.2.3 However, acceptance of the following will not be considered to be a contravention of this paragraph:

- (a) Advertising items of limited commercial value such as pens, diaries or calendars;
- (b) Occasional business entertainment such as lunches, cocktail parties or dinners;
- (c) Occasional personal hospitality such as tickets for sporting, entertainment, recreational or other events, provided that the cost of travel and accommodation in relation to such events is borne by the recipient of such hospitality and
- (d) Minor gifts of limited commercial value. [King III, principle 1.3, paragraph 42; the Company's Code of Ethics, paragraph 3.3]

5.2.4 Gift registers must be kept at SAESI's head office and at its regional offices in accordance with SAESI's policies in that regard.

5.3 Solicitation of sponsorships, donations or gifts

5.3.1 No applicable person may solicit sponsorships, donations or gifts for any charitable or other similar cause from any supplier or customer of SAESI without the prior written approval of the CEO of company.

5.4 Relationships with suppliers, customers and contractors

5.4.1 SAESI recognises that the applicable persons may have relationships with suppliers, customers and contractors may give rise to actual or perceived conflicts of interest.

5.4.2 In this regard, applicable persons must ensure that they act independently and are seen to be independent from any business entity which has a business relationship with SAESI or which provides goods or services to SAESI. [King III, principle 1.3, paragraph 42; the company's Code of Ethics, paragraph 3.5]



Unethical and improper conduct

6.1 Anti-bribery and anti-corruption

6.1.1 No applicable person shall engage in or tolerate any corrupt or dishonest practice such as bribery. It is unacceptable to directly or indirectly offer, pay, solicit or accept bribes in any form.

6.1.2 No applicable person shall directly or indirectly request, accept, offer or grant a personal advantage in connection with a business transaction or other activity, especially in the negotiation or performance of obligations under a contract, regardless of whether the other party or potential party to the contract is an individual, a company or a government department or government-related or controlled entity.

6.1.3 No applicable person shall make or accept any payment or 'kickback' or offer or accept an improper financial advantage to or from, as the case may be, an official of a government department or government-related or controlled entity for the purpose of obtaining a permit, authority, services or any tender, contract or business.

6.1.4 Every applicable person must report any suspected commission of an act of bribery or corruption in terms of section 34(1) of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 in accordance with the procedure set out in paragraph 14 of this code.

6.1.5 The applicable persons should familiarise themselves and comply with the anti-bribery and anti-corruption provisions of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 and any other applicable law not specifically mentioned in this code. [King III, principle 6.2, paragraph 13, principle 6.4, paragraph 20]

6.2 Anti-money laundering

6.2.1 Any participation in money laundering activities will not be tolerated.

6.2.2 The applicable persons should familiarise themselves and comply with the applicable anti-money laundering provisions of the Financial Intelligence Centre Act No. 38 of 2001, the Prevention of Organised Crime Act No. 121 of 1998 and other applicable laws. [King III, principle 6.2, paragraph 13, principle 6.4, paragraph 20]

6.3 Facilitation payments

6.4 No applicable person may receive facilitation payments in relation to the sale, purchase or other transaction to which SAESI is a party. [the Company's Code of Ethics, paragraph 3.7]

6.5 The applicable persons should familiarise themselves and comply with the provisions of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 and other applicable laws which regulate facilitation payments. [King III, principle 6.2, paragraph 13, principle 6.4, paragraph 20]

Employment equity

7.1 All applicable persons have the right to work in an environment, which is free from any form of harassment or unfair discrimination based on race, ethnicity, colour, gender, sexual orientation and nationality, place of origin, citizenship, creed, political persuasion, age, marital or family status or disability

Health, safety and environmental responsibility

8.1 Health and safety

8.1.1 SAESI is committed to ensuring a safe work environment for all applicable persons.

8.1.2 Applicable persons who become aware of circumstances relating to SAESI's operations or activities which pose an actual or potential health or safety risk should report such risk to the company CEO.

8.2 Use of resources

8.2.1 SAESI is committed to conserving resources used in its business operations.

8.2.2 All applicable persons should use their best efforts to make efficient use of SAESI's resources and to re-use and recycle supplies and materials, if practicable.

8.3 Environmental management

8.3.1 SAESI will address the environmental impact of its business activities on an ongoing basis by integrating pollution control, waste management and rehabilitation activities into its operating procedures.

8.3.2 All applicable persons must pay adequate attention to environmental issues.

Administration of funds and assets

9.1 SAESI has developed and implemented policies and procedures to safeguard its assets and to prevent fraud and dishonesty.

9.2 All applicable persons who deal with any funds of SAESI must, at all times, follow policies and procedures prescribed by SAESI.

9.3 Applicable persons must, at all times, ensure that SAESI funds and assets are used for legitimate business purposes in accordance with policies and procedures.

9.4 If any applicable person becomes aware of any information to the effect that any funds or assets may have been used in a fraudulent or improper manner, they must immediately report this to SAESI in accordance with the procedure set out in paragraph 14 of this code.

Records

10.1. Books and records of SAESI must reflect all business transactions in an accurate and timely manner.

10.2. Undisclosed or unrecorded revenues, expenses, assets or liabilities are not permitted and, in this regard, those applicable persons that are responsible for accounting and record-keeping functions are expected to be particularly diligent in enforcing proper accounting and record-keeping practices. [the Company's Code of Ethics, paragraph 8] ▶





▶ Dealing with stakeholders and other parties

11.1 Prompt communications

11.1.1 SAESI strives to achieve complete, accurate and timely communications with all of its stakeholders.

11.1.2 A prompt, courteous and accurate response must be provided to all reasonable requests for information made by stakeholders. Any complaints should be dealt with in accordance with the procedures established by SAESI and any applicable laws.

11.2 Media relations

11.2.1 SAESI's policy on dealing with the media and the general public requires that these issues be dealt with by authorised prescribed officers in consultation with the chief executive officer of the company.

11.2.2 SAESI may be requested, from time to time, to express its views to the media on issues pertaining to its business. The applicable persons who are approached by the media must refrain from making any statements and must immediately bring this matter to the attention of the person to whom they report or an appropriate chairperson of the relevant working group or company CEO.

11.2.3 All applicable persons, when dealing with anyone outside SAESI, including public officials, may not compromise the integrity or damage the reputation of any individual, business or government body or that of SAESI.

Confidentiality of information

12.1 The applicable persons must observe the following principles in regard to safeguarding and maintaining the confidentiality of information:

12.1.1 Safeguarding Information

Information must be retained for so long as it is required by SAESI or by law and such information must be protected and kept confidential.

12.1.2 Access to information

Information in respect of:

12.1.2.1 Any confidential product, plan or business transaction of SAESI or

12.1.2.2 Personal information of any applicable person must not be disclosed by any applicable person unless written approval for such disclosure has been obtained from SAESI Board of Directors or the company CEO.

Contravention of the code

13.1 Any contravention of this code is a serious matter and, in the case of applicable persons, may result in disciplinary action, including termination of employment and, in the case of the applicable persons, may in certain circumstances, result in civil or criminal proceedings being brought against the individual concerned.

13.2 Any suspected or alleged contravention of this code that is under investigation must be treated with the utmost confidentiality.

13.3 If an applicable person becomes aware that their actions have or may have contravened or may contravene this code, they must report this to the CEO to raise before the Board of Directors of SAESI.

13.4 If an applicable person is aware of, or suspects, that another applicable person has contravened this code,

they must not confront the individual concerned but must utilise either one of the procedures below:

13.4.1 Promptly and confidentially report such contravention or suspected contravention to the person to whom they report or to the company CEO and or the Board of Directors if the CEO is suspected to be involved.

The implementation of this code

14.1 Each subsidiary or working group or sub-committees of working groups or regional branches must:

14.1.1 Monitor and enforce this Code; [King III, principle 6.1, paragraph 7]

14.1.2 Communicate and consult with SAESI members in the relevant division of SAESI regarding standards of ethical behaviour and compliance procedures and [King III, principle 6.4, paragraph 21]

14.1.3 Enforce discipline in regard to breaches of guidelines relating to unethical behaviour.

Reporting and external assurance

15.1 SAESI's prescribed officers designated as chairpersons must prepare a written report on the ethics performance of SAESI's work groups and sub-committees and branches and submit such report to the Audit and Risk Committee for its consideration. The Audit and Risk Committee will report on ethics performance to the board of directors of the company. Such report must include but not be limited to, the following information: [King III, principle 1.3, paragraphs 49 to 51]

15.1.1 A summary of SAESI ethics risk identification and assessment process; [King III Practice Note: Ethics Management, page 8]

15.1.2 The extent to which the provisions of this code have been integrated into SAESI's business strategies and day-to-day operations, including the steps which SAESI has taken to familiarise the applicable persons with the provisions of this code and other applicable policies; [King III, principle 1.3, paragraph 44]

15.1.3 The steps which SAESI has taken to implement the code; [King III Practice Note: Ethics Management, page 8]

15.1.4 An evaluation of the adequacy and the effectiveness of SAESI's policies referred to in this Code; and [King III Practice Note: Ethics Management, page 8]

15.1.5 Any recommendations regarding the improvement of SAESI's ethical culture. [King III Practice Note: Ethics Management, page 8]

15.2 As part of its integrated reporting, the board must report to the shareholders of the company in SAESI's Integrated Annual Report on the ethics performance of SAESI in terms of material non-compliance with this code. [King III, principle 6.1, paragraph 6 and paragraph 10 and principle 6.4, paragraph 22]

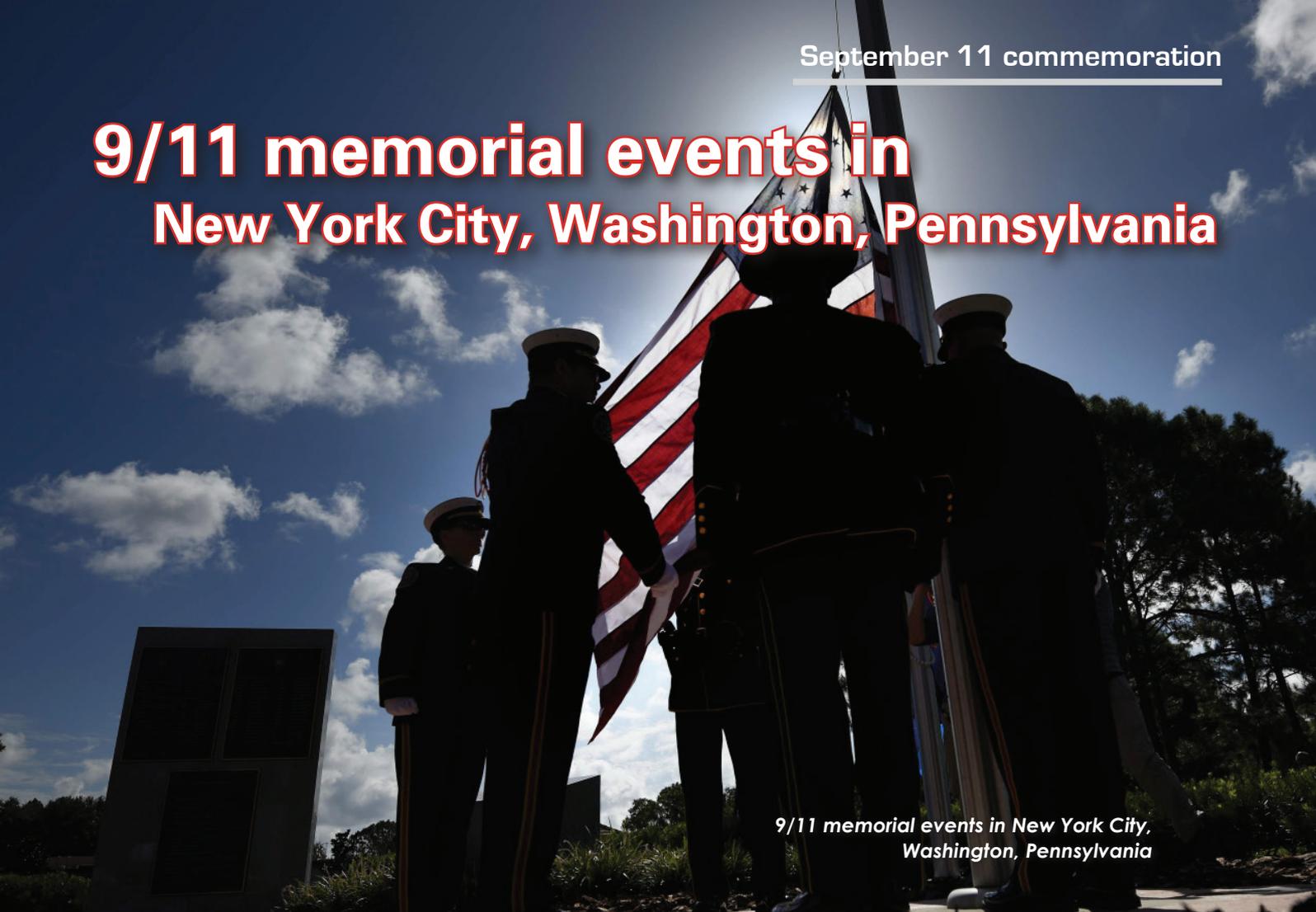
General

This code must be reviewed every second year and amended in order to take account of changes in applicable laws and regulations and changes in the business of SAESI.

The SAESI Code of Ethics and Conduct is available in downloadable PDF format on the website.

Visit www.saesi.com. ▲

9/11 memorial events in New York City, Washington, Pennsylvania



9/11 memorial events in New York City,
Washington, Pennsylvania

The recitations of the nearly 3 000 names of the dead rose toward a cloudy sky over lower Manhattan on the morning of 11 September 2016 like an epic poem chronicling one of America's saddest days. Bagpipes played and bells tolled in solemn tributes. Fifteen years ago, the United States changed forever when four airliners crashed into the Twin Towers in New York City, the Pentagon in Washington, District of Columbia (DC) and a field outside Shanksville, Pennsylvania. The age of terror had begun. "11 September 2001, touched every single one of us," New York City mayor, Bill de Blasio, said on 10 September 2016 during a memorial service at St Patrick's Cathedral for the city's fire department. There is no New Yorker who somehow evaded the pain of that day. We all felt it. We all were affected. Everyone felt it. Everyone suffered."

At the World Trade Centre, 2 753 people were killed when the hijacked jetliners were intentionally flown into the towers. Among those who died were 343 fire fighters, 23 police officers and 37 officers with the Port Authority of New York and New Jersey. At the memorial service on 11 September 2016 in New York, surviving relatives stepped to the microphones in pairs at the spot where the towers once stood. Some wore ribbons and buttons with photos of their dead loved ones. By late morning, the sun had broken through the clouds on a humid day.

NORMAC

FIRE FIGHTING PUMPS

FIGHTING FIRES IN SOUTH AFRICA FOR 10 YEARS



HYDRAULIC
SINGLE
TWIN STAGE
TWIN STAGE WIDE
With Honda GX160/GX390



PTO
GEARBOX



PETROL
HONDA
DEK
DIESEL



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NYPD marches with flag during ceremony at 9/11 memorial

- ▶ Jim Giaccone remembered his older brother, Joseph Micheal, who worked for Cantor Fitzgerald on the 103rd floor of the north tower. The financial services firm lost 658 employees that day. "Fifteen years are like 15 seconds," Giaccone said. "The hurt is still there. The

hole is still there. You live on through your family. We miss every day and everyone tell someone you love them today." Jerry D'Amadeo said he was 10 when he lost his father, Vincent Gerard D'Amadeo, who also worked for Cantor Fitzgerald.



Commemorating the fallen during 9/11

This summer, the younger D'Amadeo worked with children affected by the shooting at Sandy Hook Elementary School in Newtown, Connecticut, where 26 children and adults were killed in 2012. "Sometimes the bad things in our lives put us on the path to where we should be going, to help others as many have helped me," he said. D'Amadeo blew a kiss and looked to the sky. "I love you, Dad," he said.

The 2977 men and women who died in the attacks that day were remembered with parades and solemn memorials throughout the country. Special services will be held at the spots where the planes crashed.



Ringing of bell ceremony

In lower Manhattan, bells rang to introduce moments of silence six times: at 8h46, when American Airlines Flight 11 hit the north tower; at 9h03, when United Airlines Flight 175 crashed into the south tower; at 9h37, when American Airlines Flight 77 careened into the Pentagon; at 9h59, when the south tower collapsed; at 10h03, when Flight 93 crashed in Pennsylvania; at 10h28, when the north tower tumbled.

Houses of worship throughout New York City tolled their bells and families of

victims of the 2001 attacks as well as the 1993 bombing at the World Trade Centre for hours recited the names of those killed.

Presidential candidates Hillary Clinton and Donald Trump visited Ground Zero. Clinton left the 9/11 commemoration ceremony early after she felt overheated and went to her daughter's apartment, the Clinton campaign said.

In Washington, President Barack Obama, defence secretary Ash Carter and joint chiefs of staff chairman Marine Corps, General Joe Dunford, addressed the families and friends of the 9/11 victims in a ceremony at the Pentagon Memorial.

'3 000 beautiful lives'

"Fifteen years may seem like a long time but for the families who lost a piece of their heart that day I imagine it can seem like just yesterday," Obama said. "Perhaps it's the memory of a last kiss given to a spouse or the last goodbye to a mother or father, a sister or a brother. We wonder how their lives might have unfolded, how their dreams might have taken shape and I am mindful that no words we offer or deeds we do can ever truly erase the pain of their absence. Yet you, the survivors and families of 9/11, your steadfast love and faithfulness has been an inspiration to me and to our entire country."

Obama said the "3 000 beautiful lives" lost that day will never be forgotten. To the survivors and families of victims, Obama said, "You remind us there's nothing that Americans can't overcome."

At the Pentagon, 184 people were killed when hijacked American Airlines Flight 77 crashed into the building. One of the hijacked planes crashed outside Shanksville, Pennsylvania, apparently forced down short of the terrorists' intended target after passengers and crew fought back. A service was also held at the Flight 93 National Memorial.

After the September 11 commemoration ceremony, New York Governor Andrew Cuomo joined more than 450 motorcycle riders participating in the 9/11 Memorial Motorcycle Ride at a lunch in New York City. The ride paid tribute to the strength, courage and heroism of the first responders who led recovery efforts during and following the terrorist attacks.

At the Pentagon, Obama praised an America "drawn from every corner of the world, every colour, every religion and every background. Our patchwork heritage is not a weakness," he said. "It is still and always will be one of our greatest strengths. This is the America that was attacked that September morning. This is the America that we must remain true to." ▲

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Memorial services for 9/11 held in South Africa



Memorial service held by SA Emergency Care
Photo: Simon McDonnell

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Convoy of about 900 bikers

Photo: Simon McDonnell

Various fire services of South Africa commemorated 9/11 in support of their fellow brothers of the United States to honour the 343 fallen fire fighters of September 11. Fire and Rescue International received the following articles and photos from around the country.

SAEC hosts 9/11 memorial

Firefighters Johannesburg in collaboration with South African Emergency Care (SAEC), Volkswagen Club, ER24 and South African Police Service to name a few took part in a memorial ride commemorating the 15th anniversary of the deadly September 11 attacks in the United States.

With bagpipes reverberating solemnly, the more than 900 riders were welcomed at the Fireman's Tavern after a slow ride from Centurion to Johannesburg. "We're here to remember the sacrifice of the 343 heroes. We are also here to remember those involved in saving 18 000 lives on that day," said Lorry Fischer, station commander at SAEC.



900 motorcycles, 20 ORRU vehicles, about 20 VW's, about five ER24 response vehicles and their heavy rescue tender participated

Photo: Simon McDonnell

Taking part in the 9/11 memorial ride were several motorcycle clubs, the Volkswagen Club, ER24, Off-road Rescue Unit and the South African Police Service, among others. As the group rode past, American flags flown in solidarity flapped wildly in the wind. Approximately 900 motorcycles, 20 Off Road Rescue Unit (ORRU) vehicles, approximately 20 VW's, about five ER24 response vehicles and their heavy rescue tender participated, led by the truck, Mustang Sally.

Louise Staffie, who was riding with the Christian Motorcycle Association, said it was incredible to see so many people taking part in remembering those who died on September, 11. Donning a silver fireman's hat, former fire fighter Brian Muller said it was important to remember "our fallen brothers and sisters. As former fire fighters, we can relate to the risks they took and as South Africans we feel for what happened, it's difficult."

City of Tshwane fire fighter Gordon Kuhn added that "it reminds us of what we're up against every day. We know what it's like to be trapped and we understand the high risks. The important part here is to be there for



Photo: Simon McDonnell

Memorial service held by SA Emergency Care

each other. I feel very proud to be a part of this and to be here," he said.

The 9/11 commemoration ride was organised by Firefighters Johannesburg and the SAEC. One of the organisers from Firefighters Johannesburg, Elmare Liebenberg, said she was blown away by the turnout. "I'm overwhelmed, it's the first time we've done the memorial ride and we were expecting maybe 100 riders. To see so many people

here showing their support for the 343 fallen firemen is awesome," she said.

Following the ride, a short memorial service was held, where firemen and emergency personnel did a slow procession while a flag-lowering ceremony took place. As the flag was folded and handed to SAEC chief Jan Liebenberg, the Star Spangled Banner was sung. Fisher concluded the moving ceremony and reminded the attendees that 'when we walk

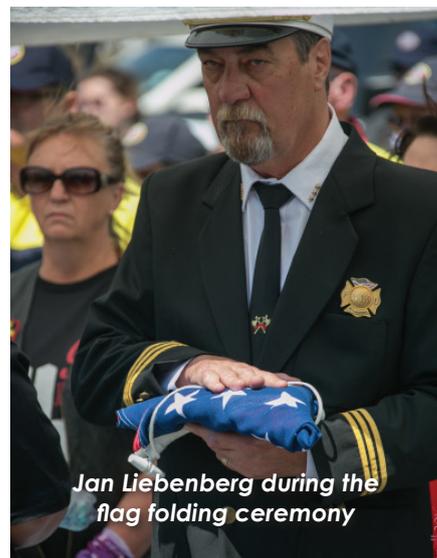


9/11 ceremony held at SAEC

Photo: Simon McDonnell



City of Cape Town's Goodwood Fire Station commemorated 9/11



Jan Liebenberg during the flag folding ceremony

Photo: Simon McDonnell

▶ away today, we must never forget those who perished'.

Stair climb memorial service, Mossel Bay Fire and Disaster Management Services

Platoon C of the Mossel Bay Fire and Disaster Management Services commemorated September 11 by taking part in a stair climb.

City of Cape Town's Goodwood Fire Station

The City of Cape Town's Goodwood Fire Station commemorated the September 11 attacks on 11 September 2016 by standing parade in their whites. Milan Susic, fire fighter, Goodwood Fire Station said, "We read out the Fireman's prayer and had a minute of silence

to remember our fallen brothers." The crew for that day was station commander Warren Sam, senior fire fighter Gregory Hasenjager, senior fire fighter Wilhelm la Grange, senior fire fighter Philip Daniels, senior fire fighter Andrew Fortein, fire fighter Corne van Zyl, fire fighter Milan Susic and fire fighter, Reghardt Theron.



Mossel Bay Fire and Disaster Management Services commemorates September 11



Mossel Bay Fire and Disaster Management Services commemorates September 11

EC UFPA honours 9/11

The Eastern Cape Umbrella Fire Protection Association (EC UFPA) honoured September 11 by wearing New York Fire Department (FDNY) gear. Hein Niemand, planning officer, EC UFPA said, "The Eastern Cape UFPA has over time built up a good working relationship with the FDNY on numerous incident command system (ICS) courses, in particular assistant chief, Ronald Spadafora and Michael Meyers, chief, Battalion Nine.

These T-shirts were sent to us by our FDNY colleagues and so we decided to wear these t-shirts in remembrance of 9/11 and to show support." On 9/11, Ronald Spadafora was recalled to the World Trade Centre (WTC) and supervised both rescue and fire suppression efforts at the North Tower and WTC 7. He was named the WTC Chief of Safety in October 2001 for the entire Recovery Operation ending in June of 2002. In response to the support shown by EC UFPA, Michael Meyers, chief, Battalion Nine said, "Love it! What a great group of friends I have over the Ocean! Glad I got to spend some time with you folks. Hope to see you again soon." ▲

Tweede Waterval Jonkershoek Rescue, Western Cape

By Nicholas Le Maitre

On 7 July 2016, Ivan Pauw, a young student at Stellenbosch University, went hiking to Tweede Waterval in the Jonkershoek Nature Reserve, an hour from Cape Town, a hike he had done several times before. It is a popular hike due to the spectacular waterfall of around 180 metres high. The hike follows a path for the most part, before entering a narrow canyon with some scrambling around minor waterfalls to reach the major waterfall at the top. He safely reached the waterfall at around 14h00. On his descent, he slipped and fell, sustaining multiple fractures to his right leg, right hip, left wrist and cheekbone. With no cell phone reception, he was unable to phone for help. He crawled as far as he could down the river to the top of a minor waterfall, covered himself as best as he could with his clothes and waited.

His absence was noted by his family and reported to the reserve manager, who summoned Wilderness Search and Rescue (WSAR) at around 19h00. Rescues from this location are not uncommon but mostly the patients are uninjured and can easily be assisted out. For this reason, a small team of eight rescuers was dispatched with minimal equipment. They reached Pauw at around 21h00. Due to the severity of his injuries, a volunteer rescue doctor was asked to come out and administer pain medication and treat for hypothermia and shock. Several of the team members left to fetch more equipment, including a stretcher. Pauw was packaged onto a vacuum mattress and put into a sleeping bag with hot water bottles then moved across the river to a point from which it was thought he could be hoisted into a helicopter.

No night-capable aircraft and crew were available to extract the patient from the canyon that night and the patient and rescuers then spent the rest of the night sheltering as best they could from the spray driven off the waterfall and in the early hours of the morning, the rain.

At first light an Agusta 119, from the South African Red Cross Air Mercy Service (AMS), attempted to extract the patient from the location where he spent the night. Unfortunately, due to the narrowness of the canyon, the hoist cable was not long enough to reach the stretcher. The pilot requested that the stretcher be moved upstream, toward the major waterfall where the canyon opened up enough for the rotor disk to clear the cliffs.

With the extremely limited technical equipment and no technical stretcher, the helicopter was used to ferry in the necessary gear.

The patient was carried up the river as far as possible. Due to the deep pool directly below the main and belay anchors, the only safe position to put the stretcher down prior to the raise, was offset both outwards and



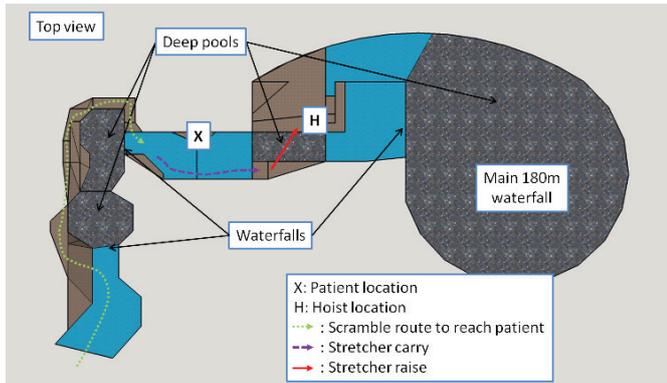
AMS 119 in the kloof to hoist the patient

Photo by Matthew Young

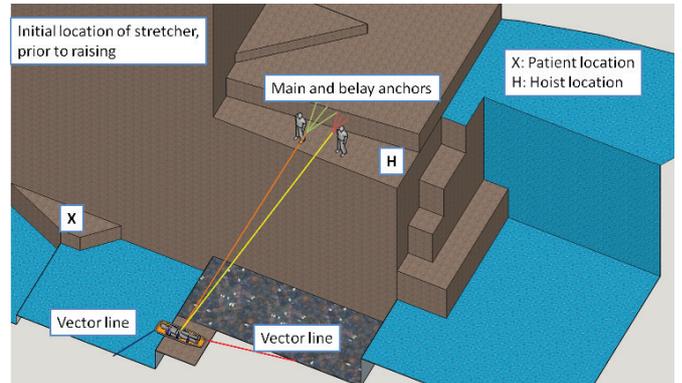


The patient in the silver space blanket ready to be raised up the cliff

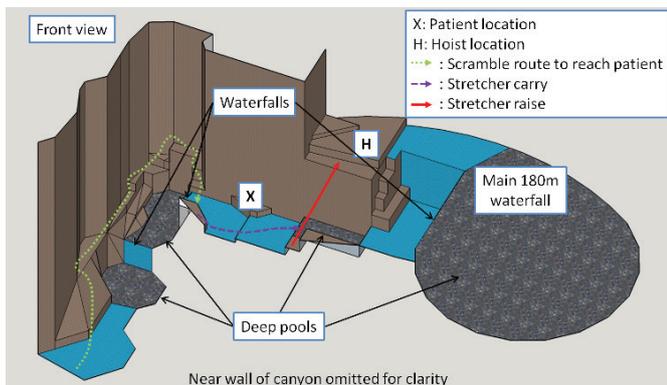
Photo credit: Nicholas Le Maitre



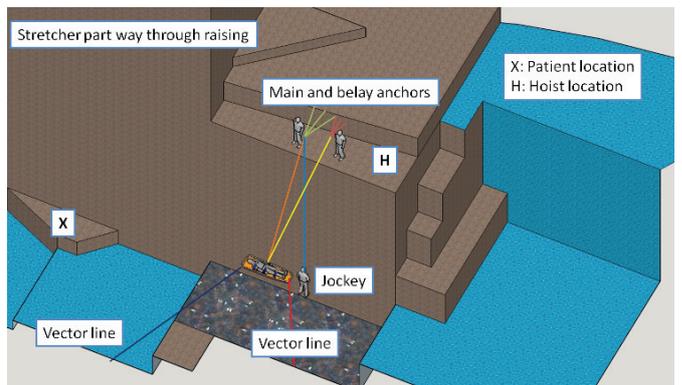
A top down view of the canyon in which the patient was located, the canyon walls are in places 50 to 100 metres high and there is a 180 metres waterfall at the top



The technical raise of the stretcher, showing the initial location of the stretcher as well as the location of main, belay and vector anchors



The route that the rescuers took to reach the patient as well as the route of the extraction



Part way through the stretcher raise, showing the use of vector lines and the position of the jockey

▶ downstream. A normal raise from that offset point would have resulted in the stretcher falling into the pool and risk the patient drowning. Therefore, in addition to the main and belay lines, two vector lines, one on the patient's shoulder and one on the patient's foot were attached to the stretcher. A third rope was positioned next to the stretcher, which allowed a rescuer to ascend alongside the stretcher without weighting it.

As the stretcher was raised, the two vector lines were paid out gradually, allowing the stretcher to move towards the cliff and eventually reach a position directly below the main and belay anchors. When it reached the cliff, the personnel who were no longer needed at the bottom, came up to assist with the haul and the jockey began jumaring up the rope next to the stretcher, stopping every so often to manoeuvre it past obstacles. With more haulers, the raise went smoothly until the stretcher was safely on the ledge at the level of the anchors. All the while during the operation, the weather was worsening with the cloud ceiling dropping and the rain strengthening.

The helicopter was then used to first hoist out the doctor, before hoisting the stretcher and dropping the patient off at the landing zone. The helicopter then returned to collect the heavy equipment and ropes. The remaining rescuers then walked out back to the road, reaching it at around 14h00.

At no point was it contemplated to move the patient downstream from the point where he was found. The steepness of the canyon walls, the poor quality rock and the lack of anchoring options would have required the placing of many artificial expansion anchors and some exceptionally complex rigging involving at least one highline, possibly two.

All in all, this was an exceptionally challenging and complex technical rescue accomplished by a very small team in very difficult conditions.

Lessons learnt from this particular rescue:

- Always have a plan B, C, D etcetera. The inability to hoist the patient directly led to a very challenging and complex technical rescue, for which there was just enough equipment and rescuers. It would have been better to have a large team, with lots of equipment, on standby at the end of the path
- Always recheck your anchors once the load is on the main line. One of the legs of the main line was rubbing over a sharp edge that destroyed the sheath
- Train hard, rescue easy. Training complex, challenging rescues means that when you are faced with similar situations on a real callout, dealing with them is easy
- Medical professionals with requisite training to give a wide variety of pain medications are invaluable on wilderness rescues ⚠



Rescuers with the patient prior to the raise

Photo credit: WSAR

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eThekwini Grinder Challenge 2016 results and gallery



29 and 30 July 2016 saw the eThekwini Grinder Challenge 2016 come to fruition at the Durban North Beach Amphitheatre on Durban's Golden Mile beachfront. The two-day event offered 70 fire fighters from eThekwini Fire and Rescue, Msunduzi Fire and Emergency Services, UMhlatuze Fire and Rescue, Transnet Ports Authority and Airports Company South Africa (ACSA) King Shaka Airport participating in several gruelling challenges. One volunteer fire fighter at Johannesburg Emergency Management Services also attended.

Organised by eThekwini Fire and Rescue's training officer, Aghmat Steele, the event presented participants with five challenges in a circuit fashion, which include the twin hose drag over 60m, Kaiser Force hammer and foam drum shuttle run with three sets of two 20kgs foam drums carried over 24m, the tower where they carry a 20 litre foam drum up and down and hoist two coiled lengths of 63mm hose to the top. Following was the 90kg truck tyre drag that simulated a victim drag over 40m followed by the traditional stair climb of 21 storeys.

All challenges were performed in full bunker gear with self-contained breathing apparatus (SCBA) sets.

Results

Overall winners

Overall Grinder Champion 2016:	Simiso Cyprian Gumede	eThekwini Fire	00:07:50
Overall Female Grinder Champion 2016:	Simangele Faith Mbanjwa	eThekwini Fire	00:14:08
Overall Runner Up 2016:	Similo Mthembu	Umhlatuze Fire	00:08:48
Overall Master's Grinder Champion (over 40yrs):	Charles Bishop	eThekwini Fire	00:09:42

Team relay

Winners – eThekwini Fire (Charles Bishop, Dave Leppan, Claude Conradie and Aghmat Steele)

Male category winners

18 – 29:	Simiso Cyprian Gumede	eThekwini Fire	00:07:50
30 – 34:	Senzo Mjana	eThekwini Fire	00:08:49
35 – 39:	Thabani Elvis Mgumbeza	eThekwini Fire	00:09:18
40 – 44:	Charles Bishop	eThekwini Fire	00:09:42
45 – 49:	Kumarasan (Adrian) Naicker	ACSA	00:21:58
50 and over:	Alson Thabethe	eThekwini Fire	00:12:40

Female category winners

18 – 29:	Simangele Faith Mbanjwa	eThekwini Fire	00:14:08
30 – 34:	Suzanne Mdadane	eThekwini Fire	00:23:04
35 – 39:	Thembisile Octavia Jali	eThekwini Fire	00:22:35
40 and over:	Grace Masango	eThekwini Fire	00:16:21

Sponsors included SGB Cape, AV Company, Tsogo Sun, MSA Safety, Fire and Rescue international, Industrial Safety, Digital Print Xpress, Hamilton Hydraulics Services, My Renaissance, Inkunzi Fencing, Events World, Nando's and Sica's Guest House.

Congratulations to the winners and all the contestants! ▲



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Children of Fire founder, Bronwen Jones, honoured



Dame Judith Macgregor, Bronwen Jones and some of the burn victims

Bronwen Jones was awarded the British Empire Medal in a ceremony at the British High Commissioner's residence in Waterkloof, Pretoria on 25 July 2016. Dame Judith Macgregor, the British High Commissioner to South Africa, presented the Empire Medal to Bronwen for her work with children affected by fire. A number of dignitaries were present including Ambassador Bene L M'poko, Democratic Republic of Congo Ambassador to South Africa, several sponsors and plastic surgeons.

Children of Fire works with burn survivors in South Africa and across the continent, providing medical advice and assistance to disadvantaged children in urban and rural communities that would otherwise not receive adequate medical treatment. The charity also coordinates awareness campaigns to educate impoverished communities about fire safety. This is done through various initiatives such as the production and dissemination of video fire safety tutorials to the fire services industry in South Africa, providing disaster recovery bags in informal settlements and training volunteer fire fighters in shanty towns most at risk, among other peer-to-peer fire awareness initiatives.

Jones also established a sister-charity the Johannesburg School for Blind, Low Vision and Multiple Disability Children, which orphaned burn survivors attend while preparing for surgery. It is close to the Children of Fire premises located in

Auckland Park, Johannesburg, which is the base of the pan-African charity work. However, Children of Fire's main task is to emotionally and physically rebuild young survivors of burn injuries in Africa and to assist and educate the communities in which they live, providing both prevention and cure.

The origins of the charity are based on Jones' chance meeting with an infant burn survivor in 1996, who was abandoned and in critical condition at the Far East Rand state hospital in Springs, Gauteng. Jones was moved to visit the six-month old burn survivor in hospital after reading of her plight in the media. She eventually was made the sole guardian of the child by officials and later adopted her. Jones had worked as an engineering geologist at the time of her initial introduction to Dorah Makoena.

Furthermore, she extended the footprint of Children of Fire to provide medical care and assistance to impoverished communities and burn survivors across the African continent. The local charity has assisted more than 350 burn survivors from different parts of Africa. The rehabilitation centre takes care of between six and 40 children at any given time, all provided with repeated surgery and with occupational therapy and physiotherapy.

Jones says that there is a stigma around children who have been badly burned and she has found that some

surgeons avoid working on child burn survivors. Child burn survivors suffer both physical and mental trauma as a result of the cosmetic transformation they experience. Jones says that her task is to provide holistic rehabilitation to the child burn survivors. "Child after child came and I have gained great knowledge on how you can 'fix' these kids," she explains.

Children of Fire is proactively involved in various fire fighting and awareness projects, such as the design of fire fighting water tanks to combat disasters in a critical post-fire period before fire brigades arrive on scene.

Another novel undertaking by the centre has been to work with inventors of new stoves, candle holders and fuels, specifically towards creating safer household fire appliances for the poor.

Jones says that the centre is engaged with organisations across Africa to combat the prevalence of fire-related injuries among children. "We do research and interact with medical students and doctors. We also have volunteers that we use in different capacities," she says.

UMashesha, which means quick response, translated into English, is one project undertaken by the centre that coordinates a group of volunteers, who are trained in fire fighting, hazmat and first aid. "We get them to go where fire engines cannot go," says Jones. The uMashesha volunteers are based in the rural and informal settlements.

Children of Fire is the first charity in Africa that is dedicated to child burn survivors. After providing medical help to hundreds of children across Africa for over 20 years, mostly through the goodwill of donors who are 'by and large ordinary folks', states Jones, "We have an affinity with the poor. We speak out for children because they cannot," she says.

Congratulations to Bronwen for the well-deserved honour! ▲

Emergency services response to acts of terror

By Colin Deiner, chief director, disaster management and fire brigade services,
Western Cape Government



Anybody who was around on 11 September 2001 will remember where they were when the world was alerted to the three major terrorist attacks that took place in the United States.

For days and weeks after the cataclysmic events that took place in New York City and Washington DC, the world watched as urban search and rescue teams from throughout the continental USA worked tirelessly in the hope of finding any possible survivors who might still have been trapped in the ruins of the World Trade Centre towers and the Pentagon.

Soon after these events, a new terror threat raised its head, Anthrax. Emergency services were suddenly inundated with call-outs to incidents involving 'white powder'. They rapidly needed to develop safe operating procedures for dealing with chemical, biological, radiological, nuclear and explosives (CBRNE) incidents. Incidents many emergency services had not thought about before.

Six years prior to the events of 11 September 2001, Japan suffered a major terror attack when in five coordinated

attacks, terrorists released sarin gas on several lines of the Tokyo subway during the rush hour, killing 12 people, severely injuring 50 and causing temporary vision problems for nearly 5 000 others.

South Africa had also not been excluded from terror attacks and, although very rare, we did have to deal with incidents such as the Planet Hollywood bombing in Cape Town in 1998. In August 1998 more than 200 people were killed in nearly simultaneous truck bomb explosions in two East African cities; one at the United States Embassy in Dar es Salaam, Tanzania, the other at the United States Embassy in Nairobi, Kenya.

Even though it has been a long time since we have suffered an attack of terrorism in this country and it is regarded as a low risk, we should nevertheless ensure that our state of readiness for the types of emergencies mentioned above is maintained at all times. Acts of terror have escalated massively in recent years and in June 2016 the world was being subjected to a major incident virtually every week in Orlando (FLA), Istanbul, Dhaka and Saudi Arabia. ▶



In Japan, Tokyo subway passengers collapsed inhaling sarin gas in 1995

- ▶ There is no clear and known evidence that South Africa will be a target and not for a second am I implying that such an attack is imminent. What is important to realise, however, is that acts of terror are not only perpetrated by foreign agents trying to destabilise the government of a country or some militant fundamentalist group. Many of the world's media do, however, attempt to paint all possible terrorists with the same brush. This is not the case. The Tokyo attack in 1995 was perpetrated by Aum Shinrikyo, a Japanese doomsday cult founded by Shoko Asahara in 1984 and was found to have been responsible for another smaller sarin attack the previous year.

Although not a De Facto terrorist attack, the attempted assassination of US President Ronald Reagan on 30 March 1981 was carried out by John Hinckley Junior. Hinckley's motivation for the attack was to impress actress Jodie Foster, over whom he had developed an obsession after seeing her in the film *Taxi Driver*.

The Oklahoma City bomber, Timothy McVeigh, was a Gulf War veteran who sought revenge against the US federal government for its handling of the Waco siege, which ended in the deaths of 76 people exactly two years before the bombing, as well as for the Ruby Ridge incident in 1992. McVeigh hoped to inspire a revolt against the federalist government.

Terrorism should also not be seen as acts by persons with a political or religious motive. Eco-terrorism is defined by the

FBI as "the use or threatened use of violence of a criminal nature against people or property by an environmentally oriented, subnational group for environmental-political reasons or aimed at an audience beyond the target, often of a symbolic nature".

We should also consider the possibility of trans-national terrorism, which in simple terms is the attack by one nationality on an enemy in a third country. The affected country might not necessarily be aligned to the targeted country but merely be hosting a diplomatic mission of that country or allowing businesses of that country within its territory.

It is not the intention of this article to speculate on the possibility of a terrorist attack happening in this country. I am also not qualified to provide an in-depth analysis on the methods and tactics that may be used by any terror groups or individuals intent on perpetrating an act of terror. I merely wish to share some thoughts on the factors that should be considered by emergency services when planning for such an incident.

Risk assessment

Terrorism can present itself in many forms. It really depends on the objectives of the perpetrators and the resources at their disposal. I will try to narrow the large spectrum of possible terrorist methodologies down to the ones that will require a response from emergency services. Following an evaluation of attacks that have taken place in recent years the following five scenarios stand out:

Armed attack in urban area

Similar to the attacks that took place recently in Paris, Brussels and Istanbul. These terrorists generally used light automatic weapons and hand grenades to perpetrate their actions. Targets are mostly indiscriminate i.e. general population and passers-by and in recent events we have seen multiple targets being engaged in various locations. As in the Mumbai attack in 2008, a prolonged hostage situation could result that could last several days, thereby delaying the ability of emergency services to reach injured victims.

Explosion

Westgate Shopping Mall collapse (2013), Nairobi and US Embassies in Nairobi/Dar es Salam (1998) and Oklahoma City (1995). These incidents usually result in large scale structural collapse. Military grade explosives are generally not that accessible and for that reason most of these crimes are perpetrated using commercial explosives or agricultural products such as ammonium nitrate (used in the Oklahoma City bombing). In such cases the targets are more discerned and the perpetrators would have left the scene by the time of the detonation. Emergency response to such incidents will involve a prolonged urban search and rescue operation lasting several days and possibly weeks. In the first few hours of the incident, it will generally also be necessary to deal with large numbers of casualties. The possibility of a CBRNE incident might also be present.

Chemical, biological, radiological, nuclear (CBRN) incident

This type of incident could be similar to the Tokyo subway sarin gas incident mentioned above. Contrary to popular belief, a CBRNE incident is not a simple ▶

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Acts of terror are in most cases aimed at people

- ▶ exercise and requires highly specialised perpetrators who must have knowledge of how to deploy chemical, biological, radiological or nuclear products as weapons. Due to the fact that the delivery method of the weapon is difficult to transport, it will more likely be dispersed in small quantities and therefore will be released in a confined space in order to maximise its effectiveness. Although a specific target may be in mind, it could, however, cause more widespread collateral damage and in such events the perpetrators of the crime would most probably already have left the scene of the incident by the time of the release. The severity of a CBRNE incident will depend largely on the type of product used and that will also determine the level of specialised response required to deal with it.

Weapons attack on a fixed installation

This could take the form of a rocket or explosive device used to fire at a fixed hazardous installation such as a petrochemical tank farm or oil refinery. Due to the security systems employed and the advanced fire protection in these installations, it will require specialised methods to perpetrate such a crime as it will not be an easy act to perform. There should not be any major loss of life; however, major damage to property could be expected in the event of a large scale incident that would set off a chain reaction of events. The initial emergency response to such an incident will be carried out by the site emergency services who will then be supported by whichever other services they have assistance agreements with before escalating to a national response. The perpetrators of such an event will also most likely leave the scene soon after the attack and that could remove the risk of a follow up attack.

Transit terrorism

These incidents could include any of the above scenarios taking place on a passenger or cargo vessel at sea, in the air or a rail incident and would not necessarily require the intervention of conventional emergency services. A ship on fire or a mass casualty incident could, however, necessitate the movement of emergency personnel to the affected vessel. Incidents such as the Lockerbie aircraft bombing could lead to a number of buildings collapsing and requiring a major emergency response.

Emergency services operations

Emergency services (fire, rescue, hazmat and emergency medical services) will at all times act in support of emergency services when dealing with acts of terror and therefore have to work closely with their disaster management, intelligence and other security services to ensure that their activities are coordinated in the event of an incident actually happening. The three major response areas to terror attacks would be urban search and rescue (USAR), mass-casualty incidents and chemical, biological, radiological, nuclear and explosive (CBRNE) incidents. We will deal with each area separately and end off with some thoughts on a national approach.

Urban search and rescue (USAR)

"Urban search and rescue is the specialist, technical rescue capability for the location and rescue of entrapped people following a structural collapse," National Urban Search and Rescue Working Group, Australia, October 2002.

I have discussed USAR in a number of previous articles in this magazine and some of my friends and colleagues have also covered some related aspects. I will only deal with USAR in the context of terror attacks here.

Historically, acts of terror that have resulted in structural collapse have been massive and taken several weeks, even months, to deal with. We recall the aforementioned Oklahoma City bombing in 1995, 9/11 and the US embassy bombings in two African cities in 1998. All these operations required the response of specialised USAR task forces to work within the incident command system of the responsible jurisdiction for prolonged periods. In the case of the incidents that took place in the continental US, the incident commanders had access to the full capacity of the American USAR system, which included approximately thirty-two full FEMA/USAR teams consisting of technical rescue technicians, canine and technical search specialists, medical support, structural specialists, hazardous materials advisors, communications teams and logistics support.

In the South African context, we do not have the access to teams of this magnitude. There is, however, a fair level of capability in the larger cities who have in recent times successfully responded to a number of structural collapse incidents in KwaZulu-Natal and Johannesburg. Certain provincial disaster management centres, together with metropolitan fire/rescue services and emergency medical rescue services spend a fair amount of time and money building capacity in this field. South African USAR teams have also responded to a range of (mainly) earthquake responses since 1999, thereby building a solid base of knowledge and experience, which has stood us in good stead. Our membership of the United Nations International Search and Rescue Advisory Group (INSARAG) is also vital in ensuring that our standards are maintained in line with accepted international practices. Since the earthquake disasters in Mexico City in 1985 and Armenia in 1988, the access to foreign disaster response teams has also become more possible.

Should the act of terror be a structural collapse event, a number of important factors will have to be considered when deciding on a strategy.

Is the building viable? There will be a need to evaluate the condition of the structure, its stability, degree of damage and the possibility of finding live victims. A structural collapse caused by an explosion could have different dynamics to that of one damaged by an earthquake. The blast would have projected its force outwards causing structural members to be propelled outwards away from the blast. The resulting vacuum created by the displaced air could also seriously compromise an already damaged building. Explosives could be placed in close proximity to load bearing structures within a building such as pillars or outer walls, which could lead to a complete collapse of the building or a highly unstable situation with the possibility of secondary collapse. You might also have to deal with secondary fires, which started as a result of the explosion. This could further affect exposed reinforcing and other building elements leading to secondary collapse. Another challenge you could face is the presence of large concrete blocks of the structure suspended by reinforcing and still hanging from upper floors. We saw this clearly at Oklahoma City. It could mean that you will not be able to commit rescue teams to the structure until they have been stabilised. This might require binding them to the structure using cabling or a cargo net configuration, depending on the size of the overhang. It should be seen as a last resort to cut them loose from their reinforcing and thereby cause them to drop to the ground. This can only be done if you are sure that no one is still trapped down below and it can be done without injuring anyone or further destabilising the structure.

Victims: Acts of terror are in most cases aimed at people. A structure that is attacked by using explosives will generally have significant numbers of victims. These victims will be medically classified according to their degree of injury and, from a rescue perspective, be classified from their degree of entrapment. The Nairobi and Dar es Salam bombings produced a large number of victims that, although injured, were not trapped or partially trapped. They are relatively easily accessed and can be moved to the medical treatment area without too much challenge. These people are also normally accessed by first arriving medical crews who often do not have the required protective clothing to move over a structure presenting the numerous hazards that are found on a collapsed structure. It is therefore important to include all responders in your planning and to ensure that each person knows exactly what their role would be and what their limitations are. You will obviously also have a number of spontaneous 'rescues' being carried out by civilians in the immediate vicinity of the scene. The first arriving incident commander needs to take a clear and strong control of the scene and audibly be able to communicate with such people, directing them where to go and what to do.

Your next class of victims (classified by degree of entrapment), those who are partially trapped, will be able to be rescued by trained emergency services rescue



The Oklahoma City bombings in 1995

crews. These units should start arriving on scene quite soon and will be kept in a staging area until released by the security services. It is when you move to the victims that are entombed in the structure that you will require the services of a USAR task force. These teams take longer to respond and should only start arriving in force several hours into the incident. It is important that the incident command still stays in the hands of the overall incident commander and does not get transferred to the USAR task force commander. He/she has to concentrate on the collapse rescue activities and can't be saddled with the responsibility of managing the larger incident. Many ►

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The collapse of three floors of Nairobi's Westgate Mall during the terrorist siege in 2013

- ▶ times incident commanders who have not yet worked with USAR teams become overwhelmed by what they see happening and doubt their capacity to manage the incident further. This should be guarded against.

You will have to deal with a number of deceased victims and although this will not be your first priority, you will be expected to remove the bodies with as much care as possible. This will present a range of challenges. Consider that a major act of terror will be a world-wide news event you will have to deal with large numbers of news teams and television camera crews covering the various activities. Should there be trapped bodies in full view of the public and media but not prioritised for immediate removal (due to the complexity involved), precautions should be taken to prevent them from being viewed by bystanders or appearing on television news bulletins.

Incident complexity: The larger and more complex the incident, the longer it might take to complete and the more specialised resources might be needed. Firstly, try to determine the scale and complexity of the scene. A major shopping mall or multi-storey building collapse will last several days and could even be of several weeks duration. This will require multiple USAR units, lighting systems, equipment maintenance workshops, construction vehicles staff welfare structures, crew rotations etc. When it is determined that you will be dealing with a prolonged incident you should immediately establish a multi-agency command system and start anticipating the resources that will be required. A logistics and finance branch must form part of your command team and be tasked with the provision of your needs here.

Assistance: Depending on the magnitude of the incident it might be necessary to request assistance from neighbouring states or the international USAR community. The INSARAG system has in recent years evolved to such an advanced level that certain teams could respond internationally within a few hours of being activated and arrive in country on the same day as when the incident occurred. Managing international USAR teams will require the command team to be aware of the arriving team's

capacities and requirements. It is not good enough to try and gain this understanding when the incident has already happened and the help is on the way. A number of training courses and exercises are presented by INSARAG that will adequately prepare potential affected countries' agencies to manage this component. You will also potentially have to deal with volunteer agencies that will be offering assistance for various reasons. It is important that these organisations are carefully managed. Many of them are primarily geared to respond to more conventional structural collapses and will also not be privy to any confidential information, which might require a certain level of security clearances. This could create a problem when they are included in briefings.

CBRNE

While the vast majority of hazardous material incidents are caused by accident (or negligence), CBRNE incidents are deliberate acts aimed at hurting or killing people and disrupting society. Examples of CBRNE incidents can include:

- The deliberate and malicious release of toxic hazardous materials
- The malicious poisoning of targeted individuals through poisoning of food, livestock or crops
- The placement of explosive devices or devices capable of releasing hazardous materials in a position including water where it can cause death or injury
- The combining of explosive devices to radiological or other hazardous sources with the objective of dispersing the source over a large area and thereby contaminating a broader area and
- Threats, hoaxes or the generation of false alarms with the aim of causing panic.

As with structural collapse there are a lot of similarities between CBRNE incidents and normal hazmat operations, however, a few factors will exist that will make it unique. These include:

- Increased public safety risk
- Need for higher security during the incident
- Increased risk to emergency services
- Risk to public and international confidence on the affected country and
- Higher complexity of response.

CBRNE incidents will require a more specialised response as the perpetrators of such acts will try to 'make it more difficult' for emergency responders by masking the identity of the 'weapon' by changing the identification signage, odourising it or packaging it in a different container. If possible these products will also be placed in locations where their properties will cause the most damage as possible eg confined spaces and low-lying areas for higher density gasses. The very real risk also exists whereby perpetrators will activate a device and plant a second device that will only be activated after the arrival of the first responders.

The diversity of products that can be used to perpetrate CBRNE incidents is what will make responding to these incidents so challenging. You will most likely have to deal with large casualty numbers requiring immediate

decontamination and medical attention. The risk of mass fatalities could also be possible. Access into the hot zone could be severely limited due to the type and nature of contamination present and hence the need for protective clothing that might not be readily available. The fact the perpetrators will attempt to mask the identity of the product will mean that specialised equipment could be required to identify it and its hazards.

CBRNE response

It might only become obvious that you are responding to a CBRNE incident sometime after arrival on scene. What might look like a hazmat incident might be a terror attack. Upon arrival you could find a number of dead or distressed people, birds or animals. A number of people could be presenting unexplained signs of skin irritation, nausea, vomiting, disorientation, breathing difficulties, unconsciousness or even death.

The presence of hazardous materials at a site that is not relevant to the particular product will be a good indicator that it could be a terror attack. These products could be characterised by strange odours, vapour clouds and irritating atmospheres.

Obviously any information provided by eye witnesses could provide valuable information as to the origin of the contaminant.

Due to the complexity of the incident, the establishment of a multi-agency command team will be the top priority. As opposed to the mass-casualty and USAR operations, the transition from a crime scene to an emergency operations scene might not be so clearly defined. Fire service hazmat teams might have to act immediately in conjunction with the police to stabilise the incident and this could require a positive action to neutralise the hazardous material. A clear and distinct command process will be critical here.

Following a trigger event or if a CBRNE incident is suspected, a structured response must follow. Ideally safe routes of approach must be decided upon and a primary staging area established. The early plan of action should be structured in such a way that responders entering the hot zone will be staggered in order of the task they have to perform. Obviously if the perpetrators are still on scene, the police tactical teams will have to neutralise the threat before any emergency services can enter. Should the scene be unsafe due to a toxic or other life threatening atmosphere still being present, it will be necessary for hazmat intervention teams to enter the scene first. This could be a very challenging set of decisions that will need to be taken and for that reason the initial response must include suitably experienced officers.

A thorough and deliberate reconnaissance of the entire scene will have to be carried out by representatives of both security and emergency services. Understand that the perpetrators of such crimes will deliberately try to cause maximum damage and that could include concealing 'weapons'. It could take specialised detection equipment and a high level of observance to ensure the entire scene is safe.



The Planet Hollywood bombing in Cape Town in 1998

The next steps will include controlling the source of the contamination or 'weapon', rescue and patient triage, decontamination and casualty management, which will include on-scene emergency care and transfer to appropriate medical facilities who would have the capacity to manage special cases.

Preplanning: policemen, paramedics and fire fighters
The complexity of a CBRNE incident will require a complex and sometimes complicated command system. It must be done well in advance where response procedures and responsibilities are clearly defined.

Determine who will be responsible for the removal of dead bodies, how evidence will be protected during rescue, triage and hazmat operations. The decontamination of evidence is a major problem. How do you decontaminate evidence without destroying fingerprints etc? Will security services have to don chemical protective clothing to perform certain functions and are they trained to do so. Are there any arrangements in place to handle contaminated bodies?

It must be appreciated that many of these issues will have to form part of policy that will have to be determined with all stake holders.

Mass-casualty incidents

Mass casualty incidents are generally defined as, "any incident in which emergency medical services resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties". The above definition is, however, impractical for making decisions about patient triage and the volume of responders required for the prehospital emergency care phase. This will also be of little assistance in determining capacity requirements of receiving hospitals. Many emergency medical services approach this challenge by evaluating their own capacities throughout the EMS value chain and then put numbers to their own definitions.

The uncertainty of the nature of an act of terror would make a precise definition very difficult. Terrorism is a different kind of trauma to the conventional mass transit ►



The collapse of three floors of Nairobi's Westgate Mall during the terrorist siege in 2013

- ▶ accident or crowd related incident. According to research conducted in Israel, the blunt, penetrating and blast injuries suffered by terrorism victims are a unique type of trauma and the need for multiple surgeries to deal with poly trauma patients will be a major consideration. The length of hospital stay will generally be longer for victims of terrorism than eg motor vehicle accidents. Victims of terrorist bombings are likely to suffer multiple penetrating wounds from high-velocity projectiles that may impact various major body regions. The potentially large number of victims will make the management of the triage very difficult. You will inevitably have a number of victims who are suffering from perceived light injuries leaving the scene in the ensuing panic only to present themselves to hospitals sometime later. Some of these hospitals might not be included as receiving hospitals in the original mass-casualty response plan and could not be geared to manage a large number of injured patients.

EMS priorities should be the rapid identification and control of severe external haemorrhaging, airway management and rapid transport to the designated trauma unit for the emergency. The EMS commander must determine a 'flow' of operations which will allow crews to move a patient rapidly through the process and the 'Join the back of the line' and repeat the process upon their return to their designated zone.

In many cases the EMS commander will not have the luxury of time to conduct a thorough triage process. Rapid scene evacuation might be necessary and this could necessitate a simpler form of patient assessment and treatment of patients necessitating a secondary triage area away but in close, safe proximity to the scene where patients could be more thoroughly assessed and despatched to the appropriate facility.

EMS operations at USAR operations will be more protracted and will differ from mass-shooting or bombing incident specifically in terms of injuries and access to victims. The medical post might have to be in place for many days where it will be necessary to rotate staff at various intervals. Medical crews will also have to move into collapsed

structures on various occasions to assist in the extrication of patients. Medics should specialise in the management of a patients entrapped for an extended period and be able to spend a long time with the rescue crew as structural entrapment releases could last several hours.

The medic must also be in a position to direct the release from the perspective of the patient.

The EMS command must also be prepared to assist the many other responders working on a collapsed structure. Rescuers working in a confined area for an extended time are prone to experiencing various degrees of mental stress and trauma. They could also suffer from heat exhaustion and other related problems. It will become the role of the EMS sector to deal with this.

A CBRNE incident will test the capabilities of the EMS command. The 'weapon' and its harmful properties might not be immediately known to the EMS command and it will be critical that an effective system of detection and identification of the product exists and is implemented early on. All the reference material related to the product and its hazards and the medical management of contaminated victims must be readily available to the command team. This will form the basis for all extended operations.

A national response

The magnitude and complexity of a terrorist attack will require a massive response by so many role players and will solicit media coverage on an unprecedented scale. Other than the obvious requirements of such an incident, it will be critical to provide the agencies working on scene with the necessary resources to effectively deal with the incident and return the situation back to normal as soon as possible. This entails more than the provision of equipment in strategic areas. Take for example the use of hazardous chemicals detection equipment. If the teams on scene are using a specific product and communicating it to a forensic laboratory a thousand kilometres away, they must both be on the same page. This entails them having the same equipment, the same reference materials and the same understanding of the product used as a weapon. The only way this can be achieved is through a single source and this can only be done through a nationally driven process. Patient reporting systems need to be the same. Work periods of the various command structures must be such that information flow is not hampered in any way.

A national incident command system will be vital for the management of the incident at its various levels. We need to appreciate that the responsibility of command will change throughout the various phases of the operation. The first phase will in all likelihood be under the control of the security services and this could gradually be transferred to an EMS commander and then to a rescue commander. A more strategic command will most probably also be implemented at a national level.

We need to work together on this. ▲

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For more information contact

Lee Raath-Brownie at Fire and Rescue International

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Organiser

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CLIMATE CHANGE AND THE EMERGENCY SERVICES

Conference

The effect of climate change has impacted on the emergency services in southern Africa, not only by means of their response to increased climate-related incidents caused by extreme weather such as heat waves, storm surges, floods, drought etc but also on their resources such as water supply. Apart from the impact of climate change on the emergency services, attention will be given to the challenges surrounding the rural-urban interface.

The 2017 SAESI Conference will provide a relevant line-up of international and local presentations with an emphasis on practical discussions around the impact of climate change on the emergency services.

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The 2017 SAESI Conference will provide a relevant line-up of international and local presentations with an emphasis on practical discussions around the impact of climate change on the emergency services.

Who should attend?

- Provincial fire, emergency and disaster management
- Metro fire departments
- Municipal and district fire departments
- Industrial fire departments
- Petrochemical fire departments
- ARFF services
- Heads of disaster management centres
- Wildfire suppression and prevention organisations
- National and private game parks' fire managers
- Forestry companies
- Fire protection associations
- Emergency medicine and medical response organisations
- Rescue organisations ie USAR, wilderness, mountain, maritime/water, search dogs etc
- South African Police Service (SAPS)
- South African National Defence Force (SANDF)
- Mining fire and safety officers





Exhibition

The 31st SAESI Conference, Expo and Training Events 2017 provides an excellent opportunity exhibit new technology, products and services. The expo also affords exhibitors the ideal networking platform as it brings together the emergency services in Africa. Live demonstrations are welcome!

Who should exhibit?

Industry associations and institutes

Vehicle manufacturers (OEMs)

Vehicle and trailer builders ie fire engines and rescue trucks, ambulances, aerial platforms, ladder trucks etc

Protective equipment suppliers ie bunker gear, SCBAs, gloves, helmets, boots etc

Equipment suppliers ie nozzles, hose and reels, pumps, monitors, skid units, tanks etc

Communications and trunking

Software suppliers

Fire safety

Fire detection and suppression

Emergency medicine suppliers

Medical equipment

Rescue gear ie saws, IR cameras, rope, harness' etc

Water rescue equipment and craft

Training providers

Insurance companies



For more information contact

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Organiser

**FIRE AND RESCUE
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Training events and challenges

A number of training events and challenges will be taking place. These include:

- Fire fighter's challenge
- Vehicle extrication challenge
- Emergency medical challenge
- High angle rescue challenge
- Incident command system development programme
- Public Information and Education Relations (PIER)

Teams

Teams are welcome to contact me for the application forms.

Sponsors

Sponsorship requests and packages will be emailed shortly. A tender process will be implemented for some of the sponsorships in order to impose impartiality and equality.

Event programme

Day	Date	Time	Event
Sunday	29 October 2017	09h00 onwards	Team registrations
	29 October 2017	TBA	World record attempt
	29 October 2017	TBA	Meet and greet, badge swapping
Monday	30 October 2017	08h00 to 16h00	SAESI EXCO meeting
	30 October 2017	TBA	Training sessions
Tuesday	31 October 2017	08h00 to 16h00	SAESI EXCO meeting
	31 October 2017	TBA	Training sessions
Wednesday	01 November 2017	07h00 to 08h30	Conference registration
	01 November 2017	08h30 to 09h00	Official opening
	01 November 2017	09h00 to 16h00	Conference, service awards, exhibition and challenges commence
	01 November 2017	17h00 to 22h00	SAESI Presidential cocktail
Thursday	02 November 2017	08h30 to 16h00	Conference, exhibition and challenges continues
	02 November 2017	18h30 to 23h00	Gala dinner, best stand awards (delegates and exhibitors)
Friday	03 November 2017	08h30 to 14h00	Conference, exhibition and challenges continues
	03 November 2017	08h30 to 16h00	Closing ceremony, competition results
	03 November 2017	16h00	Teams depart, stand breakup

For more information contact

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FIRE AND RESCUE INTERNATIONAL

Okhahlamba Fire and Emergency Services



Okhahlamba Emergency Services' new station in Bergville, KwaZulu-Natal



Okhahlamba Local Municipality is situated in the Uthukela District Municipality in the KwaZulu-Natal Province of South Africa. Okhahlamba, Bergville Municipality prior to 1994, has a population of 1,8 million people and is a popular tourist destination, known as the gateway to the Central and Northern Drakensberg and attracts both local and international tourists. The Drakensberg Mountains of South Africa or uKhahlamba (the Barrier of Spears) is a 200-kilometre-long mountainous wonderland and world heritage site, making it a tourism mecca for outdoor enthusiasts.

It is home to the highest mountain range in southern Africa, the Drakensberg Mountains and the second highest falls in the world, the Tugela Falls. The Ezemvelo Royal Natal National Park is also a renowned hiking area, rich in natural beauty.

The Okhahlamba Emergency Services was established in March 2014 with an operational area of 2 984 square kilometres and an annual budget of R2,5 million. Its headquarters, which is also the only fire station, recently moved to new premises in Bergville. The fire station also serves as the disaster management centre.

The emergency service is headed up by Superintendent Fredrich (Freddie) Halgreen, who is also in charge of disaster management for the area. We met up with Superintendent Halgreen to discuss the history, achievements and challenges faced by the service.

Background

Okhahlamba Local Municipality is a small town that relies on grants from the province but is slowly becoming self-sufficient and is currently capable of funding some projects by itself.

Okhahlamba never had a dedicated emergency service for the area or

surroundings. The council was lead out of administration after which the municipality was placed under the administration the Department of Cooperative Governance and Traditional Affairs (CoGTA). Municipal manager Siza Sibande, who was appointed three years ago, identified the need for an emergency service and the seed was planted.

Risk profile

We asked Superintendent Halgreen to describe Okhahlamba Fire and Emergency Services' risk profile. "Our biggest risk by far is wildfires that are fanned by high winds. Okhahlamba is ▶



Superintendent Fredrich (Freddie) Halgreen



The Okhahlamba Fire and Emergency Services' team



We were treated to a hot drill



The team demonstrating their capabilities

- ▶ also prone to lightning storms, floods and snow fall," said Halgreen.

He added, "As we are situated in the Drakensberg, the terrain we operate in is mountainous and dangerous, hence the need to utilise 4x4 and 6x6 fire fighting appliances. Fire hydrants are in non-existence in the rural areas and water needs to be tanked to incidents. We also have the water catchment area of Gauteng in our area which consists of big dams and reservoirs, which frequents drownings. We therefore have a water rescue section."

Operations

As Okhahlamba is such a small service, its size does not allow any member of their team to specialise in any particular field. "If there is a call on hand, then

we deal with the call to the best of our ability and capacity. You will be surprised what nifty ideas rural fire fighters can come up with when faced with a challenge!", said Halgreen.

The service does make provision for air support in the event of runaway wildfire but with a minimum budget, they are unable to utilise it as much as they would prefer.

The most common emergency scenarios that the service responds to annually are rural structural fires and motor vehicle accidents (MVAs) with entrapments. The very narrow roads and remote areas in the Drakensberg are prone to many MVAs. "If we didn't have 4x4 capabilities we would not be able to respond as we wouldn't

be able to reach the incident."

Challenges

As in all small fire services, budget constraints are a huge challenge. With very limited resources and logistics, even the smallest of incidents can become a challenge but these challenges are faced head on and eventually overcome.

Major and unusual incidents

One of the most taxing incidents Okhahlamba had to respond to was a 1 000 square metre supermarket structural fire at 22h45 at night on 12 August 2016. It was very remote with no running water, no fire hydrants, no hose reels, an appliance that carries 3 000 litres of water and the closest water source was 15 kilometres away.

It was on a Friday night with no water tankers available, neither locally nor district. Halgreen continued, "It took seven of us 17 hours to extinguish the blaze but it was done".

Other major incidents included four tornadoes that struck the area in 2015 resulting in a number of villages being destroyed.

The most unusual incident the service responded to recently was a water rescue of a cow that went for a swim through the Woodstock Dam and was drowning. Halgreen explained, "We had the water rescue craft in the water and on scene within 14 minutes and the dam is 37 kilometres from the fire station."

"Another most unusual incident was when we responded to a rescue call at one of the mountain resorts where a honeymoon couple was getting cosy. One of the mattress springs came loose and grabbed the groom's member, pinning him down onto the bed."

Equipment

As with all small municipalities and fire services, Okhahlamba has limited resources available in its arsenal. The service has the bare essentials, four self-contained breathing apparatus (SCBA) sets with four spare cylinders, 20 hoses, four branches, fire beaters, rescue extrication tools and small foam capabilities. "Just enough to get the job done at the end of the day. But without funding, the future is not rosy as we need much more than just the basics," added Halgreen.

The vehicles include:

- Toyota SRX 4x4 double cab (chief's vehicle), 184 000km mileage kilometres,
- Toyota 4x4 double cab disaster assessment vehicle
- Toyota 4x4 single cab with 500l wildfire skid unit
- Two trailer-mounted 500l wildfire unit, one with foam
- Isuzu 750 4x4 rigid pumper, 5 000l, 300l foam with extrication tools, 4 320km mileage
- Infinity 5,5 metre rigid rescue vessel with two 50 horsepower four-stroke engines
- Toyota double cab rescue unit
- Nissan Tiida general run-around vehicle



The new Isuzu 750 4x4 rigid pumper, 5 000l, 300l foam



The new Isuzu 750 4x4 rigid pumper, 5 000l, 300l foam

When asked whether the equipment sufficient, Halgreen said, "No, not at all. Meetings need to be attended, fire prevention inspections must be conducted, hydrants must be services and checked and administrative duties must be done. We need a minimum of three more light commercial vehicles and a 14 000 litre bulk water supply vehicle with 4x4 capabilities."

Halgreen said that the ultimate or custom fire truck for the station's operations (with no budget limitations) would be a small but strong 4x4 or 6x6 vehicle that can negotiate the mountains with narrow pathways and huge climbs, capable of carrying a minimum of six fire fighters and 6 000 litres of water.

Staff

The staff complement at the station comprises of the fire chief, two leading firemen, six fire fighters and four control room operators. "Two of the fire fighters are female, however, we do not distinguish between sexes or race. A fire fighter is a fire fighter," added the chief.

There are no specialist competencies as it is such a small service that everybody has to do everything.

We asked if the chief felt that he had enough competent staff for the incidents at hand and he replied, "No not at all, I would prefer to have double the staff strength as a minimum."

Training

All current fire fighters have been trained at the Rural Metro Academy in Greytown by the Provincial Disaster Management Centre (PDMC) programme. Constant refresher training programmes are attended as well as in-service training at regular intervals. "We have weekly in-service training and yearly refresher courses at the academy," said Halgreen. "Our in service training is scenario-based so we create our own training situations where we think it may occur or in our station or yard," he added.

Fire safety

With an area that never had a fire service before, compliance to fire

Meet Chief Fredrich (Freddie) Halgreen

Okhahlamba Local Municipality's superintendent of disaster management, fire and emergency services, Fredrich (Freddie) Halgreen, joined the emergency services in 1988. A first generation emergency services' practitioner, Halgreen hales from Ladysmith and joined the Ladysmith Junior Fire Department at the tender age of 14.

We met up with Chief Halgreen in Bergville, KwaZulu-Natal and inquired about what motivated him to join the emergency services. "I am an adrenalin junkie. I like challenges but most of all, I like helping people and making a difference in their lives," he replied.

Career timeline

His career started with KwaZulu-Natal Provincial Emergency Medical Services in 1988 as a student paramedic with the KwaZulu-Natal Provincial Emergency Medical Services after which he joined the Defence Force in 1990 for two years of military service. In 1993 he joined the KwaZulu-Natal Provincial Road Traffic Inspectorate as a senior provincial inspector and in 1997 was appointed as chief traffic officer at the Harrismith Protection Services.

Halgreen became station commander of the Van Reenen Rescue Station in 2006 for Ladysmith Protection Services and was appointed as superintendent of disaster management, fire and emergency services of Okhahlamba Protection Services in March 2014, his current position.

Mentors

We asked Chief Halgreen about the people that played a major role in his career and he named JHP (Koos) Breedt, manager of the Ladysmith Protection Services, as his mentor. "He was a no bull sh#t man. But he had an open door policy. He was also a strong leader willing to teach you. Koos provided us with opportunities to excel and was a very fair man," said Halgreen.

The biggest influence on his career thus far has been the duty and responsibility that politicians and management have entrusted him with and the support that he is given by his management.

Management style

When we asked Halgreen about his management style, he responded in saying that his management style is hands on with an open door policy and direct approach.



Superintendent Fredrich Halgreen

The main factor that kept him in the industry was to see the difference he made within the communities and that motivated him through the years.

We asked him at which point in his career did he realise that his ambition was to become CFO? "I never did, I just kept working hard and hard work payed off," said Halgreen. Being superintendent of disaster management, fire and emergency services in such a small town means that he is still operationally involved. "I'm still as operational today as the day I started," he added.

Advice

His advice to fire fighters and fire chiefs is, "Do your best. When you have done your best, do a little more! He added, "It always seems impossible, until it is done!" quoting Nelson Mandela. 🔥

▶ safety is almost non-existent. With the establishment of the service, awareness and outreach programmes and compliance inspections are now held frequently in order to inform and rectify the lack of awareness. Halgreen added, "These programmes and compliance inspections are although thorough, also informative and we have a very high compliance success rate when the situations are explained and risks identified."

Statistics

1. Population: 1,8 million
2. Size of area covered 2 298 square km
3. Incidents:
Number of MVAs: 140

- Total number of fires: 190
- Structural fires (formal): 10
- Structural fires (informal): 70
- Industrial fires: 1
- Wildfires fires: 230
- Vehicle fires: 6
- Other fires: 4
- Hazmat incidents: 2
- Swift water rescues: 3
- Aviation incidents: 2
- Structural collapse: 80

Interagency involvement

The station has a good working relationship with the provincial disaster management centre as it is the local disaster management centre and the chief is also in charge

of disaster management for the area. Okhahlamba Emergency Services also has a good working relationship with the local fire protection association and have a memorandum of understanding (MOU) in place with Okhahlamba Fire Protection Association.

Although Okhahlamba Emergency Services is most probably the smallest fire service we have profiled to date, it is of interest how small services have the same challenges as the larger emergency services with the added disadvantage of having to respond to a large area. It is therefore imperative for these small services to be run hands-on, as is the case with Okhahlamba. 🔥

Post-traumatic stress disorder: How is it treated?

By Mike Webber, counselling psychologist

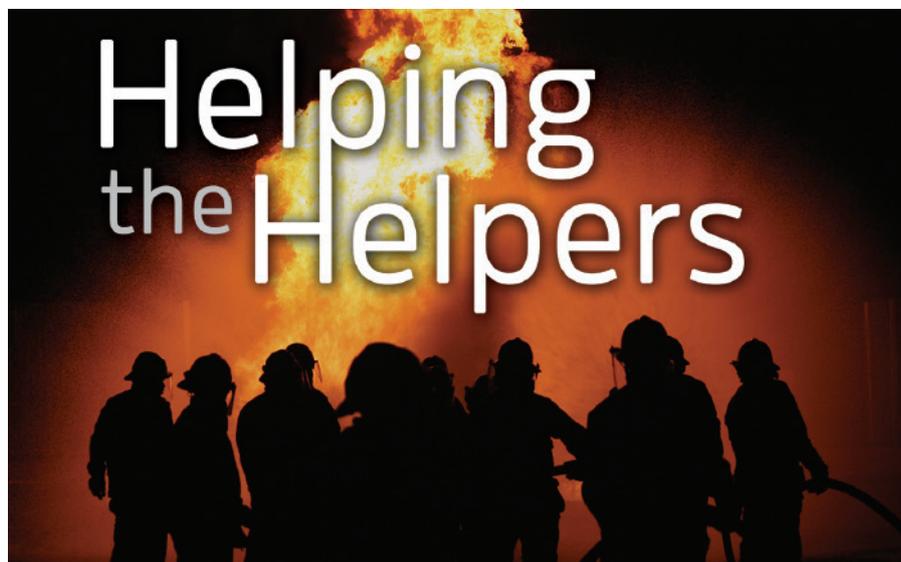
In this second part of a series on post-traumatic stress disorder (PTSD), we examine the treatment of PTSD and acute stress disorder (ASD).

Firstly, when somebody is exposed to a traumatic incident, DO NOT RUSH IN AND OFFER CRITICAL INCIDENT STRESS DEBRIEFING (CISD) OR TRAUMA DEBRIEFING!

Unfortunately, an entire little industry has grown around CISD and trauma debriefing that includes well-meaning (but grossly misinformed) counsellors, non-governmental organisations (NGOs), employee assistance programme (EAP) service providers, chaplains and community based organisations. Up to 90 percent of people exposed to an exceptionally traumatic event will not develop PTSD or ASD. In the fire and emergency services that figure, may, because of their training and desensitisation through repeated exposure to emergency incidents, be even as high as 95 percent for service members.

Being upset or emotional after an unsettling incident is not PTSD or ASD. It's a normal human response to trauma and tragedy. Immediate post-incident counselling, critical incident stress debriefing (CISD) or trauma debriefing does not help and can be even damaging and dangerous.

A meta-analysis of seven research projects on CISD and non-CISD debriefing published in the Lancet in 2002 concluded that these interventions do not improve natural recovery from psychological trauma. A further Cochrane Review that included a meta-analysis of 15 studies on trauma debriefing concluded that there is no evidence that individual psychological trauma debriefing is in any way useful in the prevention of PTSD or ASD. The



study further recommended that compulsory debriefing of trauma victims should cease.

An article published in the British Journal of Psychiatry indicated that psychological debriefing is a waste of time. Some studies have even concluded that post-trauma debriefing can be harmful and dangerous. An 18 month study of burns patients at the Cardiff burns unit concluded that patients that had undergone post-incident debriefing showed higher rates of PTSD than patients that had not. A persistent adverse effect of trauma debriefing was also noted in a study of motor vehicle collision victims in Oxford.

So what should be done?

Do not debrief. Probing, questioning and encouraging staff to describe the details of the incident only re-traumatise an already traumatised brain. What is useful is psychological first aid. Psychological first aid is defined by the World Health Organisation as: "Humane, supportive response to a fellow human being who is suffering and who may need support. It entails basic, non-intrusive pragmatic care with a focus on

listening but not forcing talk, assessing needs and concerns, ensuring that basic needs are met, encouraging social support from significant others and protecting from further harm."

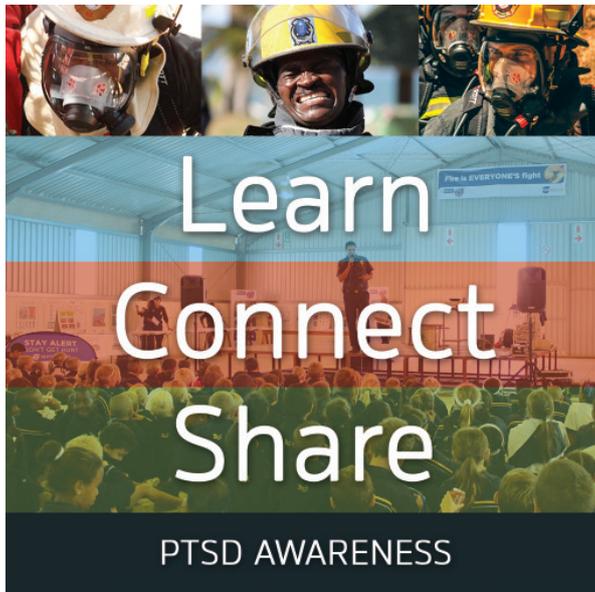
Allow colleagues to talk amongst themselves. Make it okay for staff to freely express their feelings. It's not weakness, emasculating or being unfit for emergency services work to feel emotionally disturbed or upset by gruesome incidents, incidents involving children or multiple 'dead on arrivals' (DOAs). It's okay (and even necessary) to suppress feelings whilst at work at an incident but once the action is over it's okay, no, not just okay, it's important to reconnect with feelings. It's grossly unhealthy to persistently suppress feelings. They don't go away. They just fade into the unconscious to emerge later in other ways. Do not bottle it up. The healing process from unsettling incidents starts in the vehicle's cab en route back to station from the incident. It's peer debriefing. Colleagues supporting colleagues.

This type of peer support happens spontaneously in most emergency services but it can also be structured in a peer support programme. One model for such peer debriefing is ►

▶ the Trauma Risk Debriefing Programme (TRiM) that was developed by the British military that is applied in several British police services. This comprises a common sense peer-based approach to managing trauma and the risk of PTSD. In this model trained TRiM counsellors (trained emergency services personnel, colleagues) offer, care, comfort and support to assist personnel in settling their emotions. Psychologists would call this 'containment'. The TRiM counsellor creates a safe space in which the staff is given 'permission' to experience and express their emotions without fear of being judged for it. They're also trained to be on the lookout for PTSD/ASD symptoms that may warrant a referral to a Health Professions Council of South Africa (HPCSA) registered counsellor or psychologist for counselling or therapy. They would also brief the staff on PTSD symptoms to be on the lookout for (psychoeducation), treatment options for PTSD and encourage them to seek help rather than hide or run from the symptoms.

Following that, DO NOTHING further at that stage. As mentioned further above, most personnel will not develop PTSD or ASD. A process of watchful waiting is then adopted to monitor staff and observe for the potential onset of PTSD symptoms. This watchful waiting is based on sound scientific evidence and is advocated as 'best practice' by the World Health Organisation, the National Institute for Clinical Excellence (NICE) treatment guideline No 26 The Management of PTSD in Adults and Children in Primary and Secondary Care, the Australian Guidelines for the Treatment of Adults with Acute Stress Disorder and Posttraumatic Stress Disorder, which even has a specific section for fire services and the United States Veteran's Administration treatment guidelines.

Should a staff member start experiencing symptoms of PTSD as described in the first part of this series of articles, then only is it time to start



treatment. But the right treatment. Self medicating with alcohol does not work. It only temporarily numbs the symptoms and emotional distress and does not treat the problem. It only aggravates it. Alcohol is a depressant, so anyone attempting to treat their symptoms will only get more depressed, irritable, angry and dysfunctional. It's also addictive. It doesn't turn out well. Self medicating with over-the-counter medications does not work. Some of them are also addictive and damage the gastrointestinal system, liver, kidneys and brain. Prescription medication is not considered an appropriate first line treatment.

The appropriate treatment is trauma focussed psychotherapy. There are various forms of trauma focussed therapy but the two approaches with the most research evidence are Prolonged Exposure Therapy (P-ET) and Eye Movement Desensitisation and Reprocessing (EMDR). These treatments, carried out by HPCSA registered psychologists, involve being re-exposed to the traumatic event in thought, narrative and even onsite where possible. However, sufferers of PTSD need to be referred to psychologists experienced in these treatment modalities. Treatment usually involves approximately 12 one hour therapy sessions at the psychologist's rooms or at the scene of the event. Medication is only usually considered for immediate symptom relief if the symptoms are

intolerable and the person cannot function. Tranquilisers are not recommended and simple selective serotonin reuptake inhibitor (SSRI) antidepressants and sleeping medications are deemed to be more appropriate.

PTSD is deemed to be a Compensation for Occupational Injuries and Diseases (COID) injury and any person suffering from PTSD as a consequence of a work related traumatic exposure is entitled to free treatment funded by the COID fund. The fund will typically cover 12 therapy consultations at

the fund's expense. However, it may prove difficult finding a psychologist willing to undertake work for the COID fund. The administrative difficulties encountered with the COID fund and attempting to get paid for services rendered have deterred most psychologists from doing COID work. In addition, some larger local governments are COID self-funded, meaning that they take responsibility for paying for COID treatment and any psychologist wanting to get paid for treating a work-related PTSD has to register with the council as a service provider on their supplier database, supplying a tax clearance certificate, BBECE certificate, ID, company registration, etc, which is also a deterrent to psychologists in private practice. This means that many cases of emergency services PTSD do not receive the treatment that they need and are entitled to. Non-work related PTSD is also covered by medical aid funds as a prescribed minimum benefit (PMB) condition. This means that medical aid funds are required to fund 12 outpatient psychotherapy consultations, which must be paid from the shared risk pool ie it may not be paid from savings, it must be paid irrespective of the availability of savings or not and must even be paid in respect of members who only have a hospital plan.

In the next part we will examine ways of developing resiliency and preventing PTSD. A complete list of is available from Fire and Rescue International. ▲

Preventing fire deaths in human settlements

By Rodney Eksteen, Assistant Director: Fire Brigade Services,
Disaster Management and Fire Brigade Services, Western Cape Government

Research indicates that the majority of fire deaths that occur at night are confined to the dwelling of fire origin

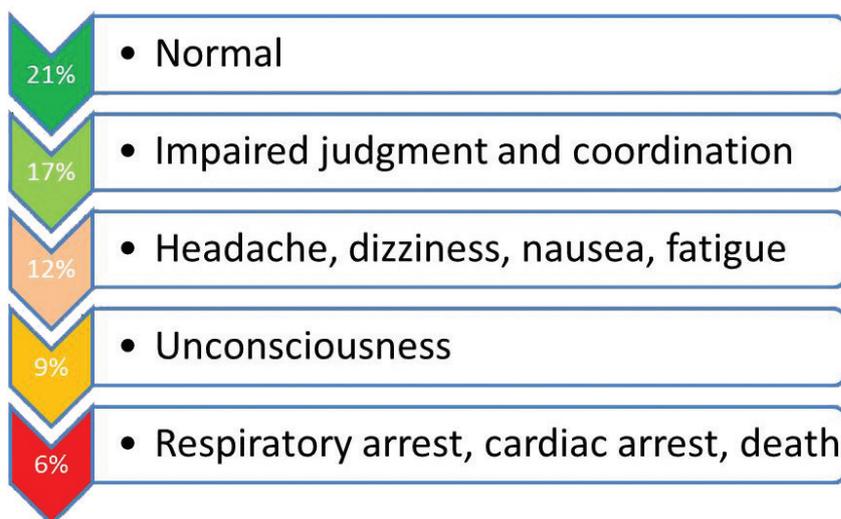
As a small fire starts in a confined space, it will often consume most of the available oxygen, slowing the burning process and resulting in 'incomplete combustion' releasing significant amounts of highly toxic smoke. In addition, when synthetic materials burn, which are often found in a typical room or shack, they produce further toxic smoke.

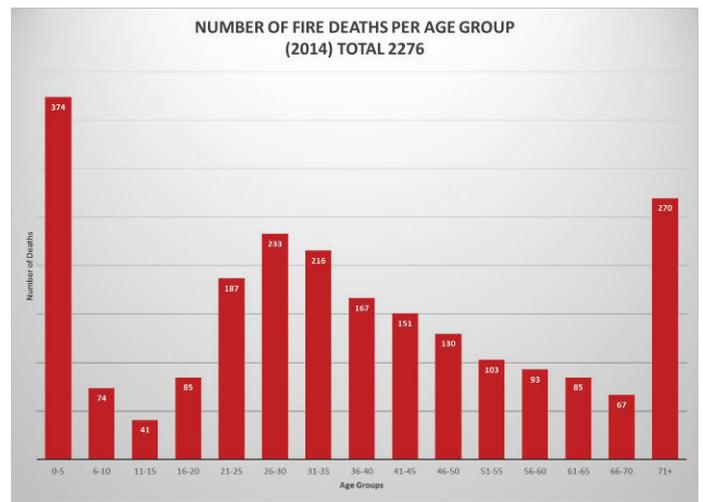
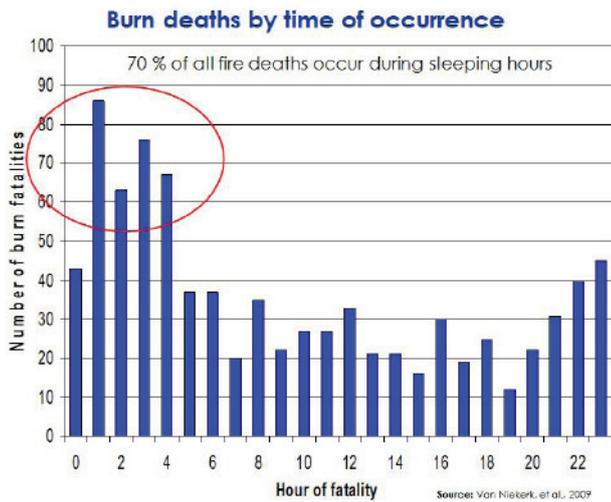
It's not surprising then, that according to the National Fire Protection Association (NFPA), most fire deaths are not caused by burns but by smoke inhalation/poisoning. It is estimated that 50 to 80 percent of fire deaths are as a result of smoke inhalation injuries, including burns to the respiratory system. In South Africa, inhalation of toxic smoke is often the primary cause of death from fires and is also a major cause of fire fighter deaths and injury. In a study titled 'A Review of Fire Accidents, Flammability and the Toxicity of Burning Textiles' conducted by Van Rensburg in 1982 from the South African Wool and Textile Research Institute in Port Elizabeth, it was determined that two thirds of all fire-related deaths were caused by toxic gases liberated by

the fire. Smoke inhalation causes acute life-threatening injuries and can result in permanent lung and neurological damage. Often smoke incapacitates so quickly that people are overcome and can't make it to an otherwise accessible exit. The hot smoke injures or kills by a combination of thermal damage, poisoning, pulmonary irritation and swelling, caused by carbon monoxide, cyanide and other products of combustion.

Smoke is a collection of airborne solid, liquid particulates and gases emitted when a material undergoes combustion or pyrolysis. It is commonly an unwanted by-product of fires including stoves, candles, oil lamps and fireplaces. The smoke and 'products of combustion' are made of various components that can each be lethal in their own way:

Particles: Unburned, partially burned and completely burned substances ▶





▶ can be so small that they are easily inhaled and penetrate the respiratory system's protective filters and lodge in the lungs. Some are actively toxic causing death whilst others are irritating to the eyes decreasing the ability to see.

Vapours: Vapour droplets of liquid can poison if inhaled and can even be absorbed through the skin.

Gases: Carbon monoxide (CO), hydrogen cyanide, phosgene and other toxic gases are rapidly produced.

- Carbon monoxide: Carbon monoxide (CO) is present in all fires and can be deadly, even in small quantities, as it replaces oxygen in the bloodstream. CO is a major component of smoke produced in

most open fires, particularly those involving wood, coal, paraffin and other organic substances.

- Phosgene: Phosgene is a combination of chlorine, hydrogen and carbon molecules and is commonly present in smoke. Phosgene is formed when household products, such as vinyl materials, are burned. The eyes, oral pharynx and upper airway are immediately affected and upper airway oedema results.
- Hydrogen cyanide: Hydrogen cyanide is a highly toxic gas that is released during the incomplete combustion of products such as nylon, wool, silk, asphalt, polyurethane and plastics. Hydrogen cyanide is absorbed rapidly, producing an almost immediate effect if exposure

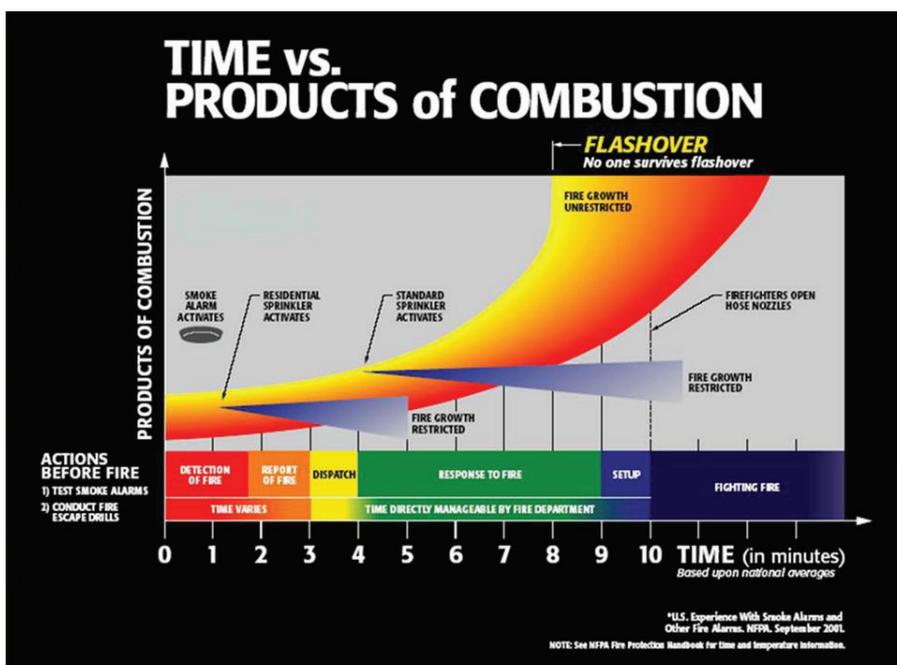
is by inhalation. In a closed room, the cyanide released from the combustion of a simple seat cushion is sufficiently toxic to poison the entire room and can become 10 times more toxic when inhaled in a low-oxygen environment. Exposure to hydrogen cyanide results in the loss of consciousness within 30 seconds, apnoea in three to five minutes and cardiac arrest in five to eight minutes.

Reduced oxygen levels: In addition to producing smoke, fire can incapacitate or kill by reducing life supporting oxygen levels, either by consuming the oxygen or by displacing it with other gases. Research indicates that when major oxygen depletion (<10 percent is present in lethal or sub-lethal levels of carbon monoxide or hydrogen cyanide, it substantially reduces the time to death.

Heat: Super-heated air is also a respiratory hazard, as superheated gases burn the airway. When the air is hot enough, one breath can kill. If superheated air has also been inhaled, swelling can be severe and cause rapid, significant airway obstruction.

Inhalation injuries from fire

The extent of respiratory injury depends on several factors, the length of exposure, availability of oxygen, position of the victim, amount of heat present, stage of the fire, and material being burned. If the victim continues to breathe the smoke, damage and swelling to the upper airways will ensue and can result in immediate death from bronchial spasm, laryngeal spasm, respiratory arrest or asphyxia.



The shorter the interval time between the ignition and the discovery of a fire in a home, the lower the death rate

The full extent of airway injury may not be evident until 12 to 24 hours after the initial injury and serious symptoms could even be delayed for up to 48 to 72 hours, although the victim initially may appear to have minor respiratory distress. Injury deeper in the airways can cause the alveoli to collapse resulting in large amounts of fluid leaking into the lungs and the victim may die later from respiratory failure.

Human risk factors that increase the likelihood of fire-related death

Sleep studies show that the olfactory (smell) functions cannot be relied on to provide protection if a fire occurs. In other words, people don't wake up because of the smell of smoke. If the occupant does manage to wake up, it may be too late, as the extensive heat and dark toxic smoke that has already filled the environment will disorientate and incapacitate the occupants, preventing them from finding their way out. Countless fire investigations have identified that being asleep is a "human factor that contributes to fire-related injury". Furthermore,

young children in particular attempt to hide from flames and smoke, thereby prolonging their exposure to toxic substances. In addition, children have a higher minute ventilation rate relative to body size than do adults, further increasing their exposure. The elderly may not even be aware that a fire has occurred due to impairments and may be unable to escape by themselves. Also, those with a history of respiratory illnesses, such as asthma or chronic obstructive pulmonary disease (COPD), are at increased risk of death from the exposure to smoke. To make matters worse, the increase in crime and the resulting installation of security bars and gates in many dwellings has further complicated the ability to escape. This has contributed too many people dying literally centimetres away from safety due to blocked exits.

There are many other behavioural risks that increase the likelihood of fire-related death not discussed here. These human factors and the effects of toxic smoke described above, reveals why most fire-related deaths

are from smoke inhalation. This threat highlights the importance of early evacuation and having the means to rapidly escape in the event of a fire.

Deaths from fire, flame and smoke in South Africa

According to the Fire Protection Association of Southern Africa (FPASA) the vast majority of fire-related deaths occur in residential properties such as formal and informal dwellings. A study by Van Niekerk et al (2009) of the Medical Research Council (MRC) indicates that more than 70 percent of these deaths occur during the 'sleeping hours' at night, particularly between 11pm and 5am, with the figure peaking at 1am. According to Statistics South Africa (2014) the majority of victims include children, the elderly and adult males.

This picture hasn't changed much as the study conducted by Van Rensburg (1982) reveals that the persons having the lowest chance of escaping fire injury or death were young children (0 to 9 years) and the

10-YEAR OPTICAL SMOKE ALARM

Compact and simple smoke alarm with a non-replaceable, sealed-in Lithium battery for 10 years of continuous protection - meaning the user never needs to change the battery for the duration of the alarm's life.



This compact and versatile unit is easy to install and can be used anywhere in the home, particularly bedrooms, living rooms and hallways, with the added convenience of never having to change the battery.



KEY FEATURES

- 10-year long life - never need to change battery
- Sealed-in battery never needs to be replaced
- End of life notification alerts you after 10 years when it's time to replace the alarm
- Ramp-up Horn allows sound emitted during test sequence to be reduced to a more acceptable volume for the user
- Combined Test/Hush™ button allows regular testing of alarm function and can be used to temporarily silence nuisance alarms
- Battery operation - Sealed-in Lithium battery

MODEL 10Y29 | POWER SUPPLY Sealed-in Lithium battery
TEMPERATURE RANGE 0°C to 40°C | **HUMIDITY RANGE** Up to 90% relative humidity (RH) non-condensing | **STORAGE AND TRANSPORT** -20°C to +60°C and 5-95% relative humidity (RH) non-condensing | **ALARM DIMENSIONS** 104 x 104 x 45mm
ALARM WEIGHT 170g

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Low cost battery operated home smoke alarm

► elderly (over 65 years). In addition, males were less likely to escape the burning structure when compared with females, if they did manage to escape, they were also more likely to re-enter the burning house and sustain fatal injuries. In 1980 the Department of Statistics released figures indicating that over 400 people lost their lives in fire-related incidents in South Africa. In 2014 Statistics SA released data on 2 276 recorded fire-related deaths due to exposure to smoke, fire and flames.

Often these victims never had the chance of escape and perished in their sleep. Many others were awoken and attempted to escape, only to be incapacitated or so disorientated

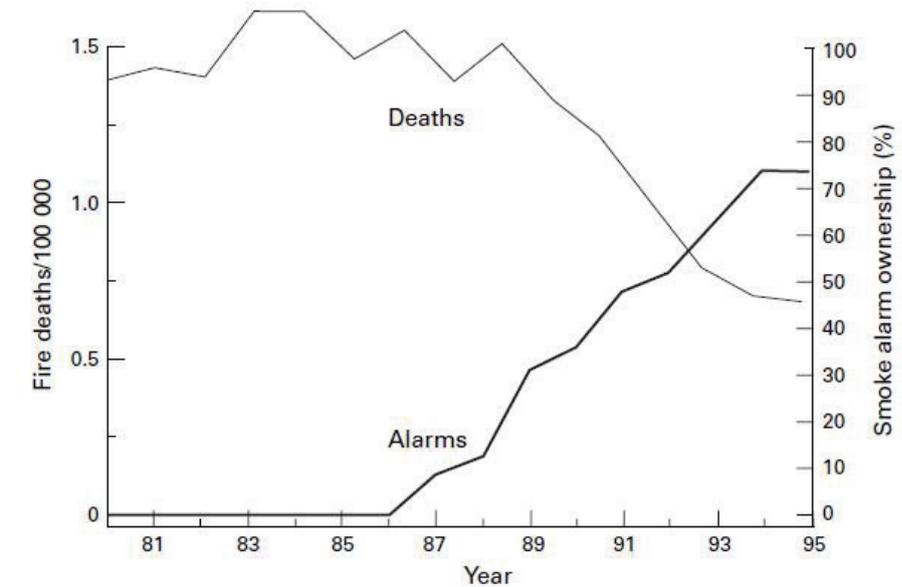


Figure 1 Trends in fire death rates in children aged 0–4 years (3 year moving average) and smoke alarm ownership.

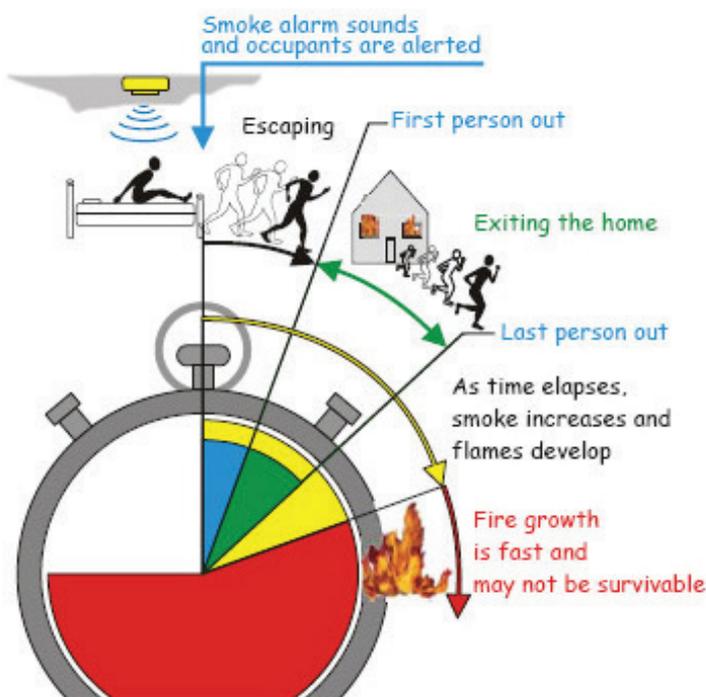
International trends clearly demonstrate the reduction of fire deaths when smoke alarms are installed.

that they could not find their way out of their own home. Tragically, the majority of these fire-related deaths are unintentional and could have easily been prevented.

Improve the chances of surviving a dwelling fire

According to global research, the shorter the interval time between the discovery of a fire in a home

and the release of toxic products of combustion, the lower the death rate. Smoke alarm technology currently provides the most effective early warning that shortens this discovery time affording critically life-saving additional time for escape. In addition, due to the early warning, occupants could even have enough time to prevent a flaming fire or more dangerous situation from occurring.



Smoke detection responds rapidly allowing occupants the time to escape

Smoke alarms are considered to offer a primary level of protection with evidence indicating that the likelihood of dying in a house fire is halved if smoke alarms are installed. The importance of installing home smoke alarms has long been recognised as one of the most cost effective life saving strategies for home fire survival, more so than having a fire extinguisher. History reveals that in 1955 the first home fire detectors used heat/temperature as the fire cue. However, between the 1960s and 1970s studies determined that smoke detectors (photoelectric or ionisation) provided reliable early warning while heat detectors did not (JR Hall, 2000).

Smoke alarms can cost as little as R50 each and are available in many different configurations depending on the environment and conditions in which they will be used. Certain

models have 10 year lithium batteries built into the unit providing 10 years of protection without having to replace the battery. Units containing a nine volt battery can be supplied with a locking mechanism to prevent battery removal by occupants. They can also be connected to the electrical supply of the dwelling and include wireless activation of other linked alarms. There are even units that have special bug covers to prevent insect infestation from taking place inside the unit. The types, configurations and variations are numerous and can be selected based on the need within the dwelling.

Smoke alarms significantly reduce fire deaths

Studies conducted in several countries indicate that smoke alarm installation programmes are an effective and inexpensive strategy to reduce residential fire deaths by providing early warning. For example, Project 'Alarms for Life', was launched in the US to install smoke alarms in areas of sub-standard housing. One year after the project started, there were 50 percent fewer house fire-related deaths compared with the year before the programme. In addition, fire fighters reported cases in which functioning smoke alarms had averted injury. The success of the programme spearheaded the passing of a regulation making smoke alarms mandatory in all city residences.

Another very successful smoke alarm programme was conducted in an area having a high rate of residential fire injuries in Oklahoma City. During the six years following the project, the residential fire-related injury rate decreased by 81 percent in the target population. This dramatic decline in fire-related injuries in the target area was largely attributed to the free smoke alarm distribution as well as to educational efforts promoting awareness about residential fire prevention.

The widespread use of smoke alarms in the US can be directly linked with the dramatic decline in deaths related to residential fires over the past 30 years. According to the NFPA in 1977 when only 22 percent of homes had smoke alarms, home



Fire detection project test shack with a transparent section for viewing smoke build up.



Smouldering fire demonstrating the rapid production of toxic smoke

fires accounted for 5 865 deaths and more than 31 000 injuries in the US. By 2009, when more than 95 percent of all homes were equipped with smoke alarms, the annual death rate from home fires had dropped to 2565, a 56 percent decline, and injuries dropped by more than 59 percent over a 32-year span. Unfortunately, the use and availability of smoke alarms has not been widely promoted for use in residential dwellings in South Africa and many people still consider smoke alarms to be a commercial device only found in factories, hospitals and other public buildings.

Smoke sensing technology

'Smoke alarms' are not the same as 'smoke detectors'. Smoke alarms detect the presence of smoke and sound a 'built-in' alarm. Smoke detectors are components of an alarm system with a panel.

The detection unit itself does not necessarily sound the alarm but instead, the signal is transmitted to the control unit that then sounds the alarm throughout the premises.

Most smoke alarms use one of two common sensing systems for detecting a fire. Ionisation-type smoke alarms pass an electric current through a 'sensing chamber'. When smoke enters the chamber, it reduces the flow of current and activates the alarm. An ionisation smoke alarm is generally more responsive to flaming fires. Photoelectric-type smoke alarms aim a light source into a sensing chamber. Smoke enters the chamber and reflects light onto the light sensor, triggering the alarm. A photoelectric smoke alarm is generally more responsive to smouldering fires. Research has shown that each type of smoke alarm technology has



Breede Valley Fire Brigade and Rescue Service
EPWP smoke alarm installation team



EPWP team conducting the installation of smoke alarms
and providing occupants with fire safety education

Nuisance alarms

Nuisance alarms resulting from a smoky oven, burned toast or other non-threatening circumstance can be a common complaint. If cooking fumes or steam regularly sets off the smoke alarm, a 'hush' or silence button will reduce the alarm's sensitivity for a short period of time. Pressing the hush button deactivates the alarm for a short period, after which it reactivates automatically. However, if a real fire had to occur, the unit will override the pause feature and sound the alarm. Removed or disconnected batteries are the leading cause of smoke alarm failure. The hush feature discourages the dangerous practice of removing alarm batteries in response to nuisance alarms.

However, non-fire activations, particularly from cooking, can be considered as pre-fire warnings. For example, a sounding smoke alarm may remind an occupant who has left the kitchen area of food on the stove requiring immediate attention. While not yet a fire, the potential exists if corrective action is not taken. If such action is taken, the situation is usually resolved without fire department involvement. This early warning provides the occupants with time to respond when a fire is in its incipient stage allowing them to prevent further damage thus reducing property and contents loss in the dwelling of origin as well as those dwellings surrounding it.

Low battery warning signal

A red light flashes usually once every minute in most smoke alarms to confirm that the battery power level is sufficient (a nine Volt battery usually lasts 12 months). Once the battery power drops below a certain level the alarm will 'chirp' once every minute. This warning signal will eventually stop after a few days when the battery power is completely depleted. Therefore, it's important to clearly demonstrate to residents how to test their alarms every month and to get them to demonstrate it as well. They will need to know that when the smoke alarm 'chirps' it means the battery needs to be replaced immediately. Using ten year lithium battery-operated smoke alarms or connecting alarms to an electrical supply, can prevent the need to replace the batteries yearly.

► unique advantages under different fire conditions. In both cases, the units trigger when the signal crosses a set threshold value. For example, when polyurethane foam (used in mattresses and upholstered furniture) was ignited with a cigarette lighter to flame, the ionisation alarms activated earlier; when the same polyurethane foam was smouldered, such as from a cigarette, the photoelectric alarm activated earlier.

Alarm placement

Since the majority of fatal home fires happen when people are asleep, at least one smoke alarm should be installed in every dwelling near

or in each sleeping area, bearing in mind that the closer a smoke alarm is to a fire's origin, the sooner the alarm will sound. Smoke alarms should be installed on the ceiling or high on a wall to detect the first traces of smoke. Some household environments can interfere with a smoke alarm's operation sometimes causing what is known as a nuisance alarm, especially if alarms are located near a cooking appliance. If the alarm is within five metres of a cooking appliance, the best is to use an ionisation alarm with a hush button or a photoelectric alarm. A useful guide to use is the NFPA 72 and the specific manufacturer's instructions.

Smoke alarm interventions

Many fire services throughout the world now implement smoke alarm interventions with great success. In fact, in many cases this has been the single most effective means for the fire service in reducing fire deaths in high risk communities. For example, a number of fire departments have found it so effective that they keep them on the fire truck. In this way fire fighters conduct on-the-spot installations of smoke alarms when they answer a call. Each company carries a kit with smoke alarms, installation tools and supplies, batteries and fire safety education materials to share with the public so that they can make an immediate impact on the safety of those in greatest need. Although fire department participation is essential, on-duty fire fighters may need to leave quickly in the event of an emergency. In order to provide consistency dedicated staff such as full time public educators, contract staff, off-duty fire fighters or volunteers can be used. Furthermore, partnerships with other organisations such as the Red Cross can also be very helpful.

Whichever means is used, it's important to ensure that those responsible for the installation process understand how to install the smoke alarms correctly and that they can share accurate fire safety information with the residents. Therefore, the most successful smoke alarm installation campaigns include a comprehensive training programme that include topics such as the objectives of the project, building trust and how to interact with residents, identifying the best placement of smoke alarms, demonstration and practice of smoke alarm installation and testing, using the smoke alarm survey and indemnity forms and how to provide fire safety and escape plan information. The installation crew's people skills are important, so role-playing activities to make sure that they can explain the purpose of the programme in a friendly and knowledgeable way would be beneficial.

Features of effective interventions

Smoke alarm installation programmes, in which the fire department installs smoke alarms, are not the same as smoke alarm giveaway programmes. Experts warn that simply giving



Dwelling environments differed considerably challenging the team to identify the most suitable installation locations

residents the smoke alarms does not ensure that they will be installed correctly, if at all. Available research indicates that programmes are more successful if smoke alarm distribution is supplemented by direct installation and combined with supporting education and scheduled follow-up visits.

While we must continue to develop and test effective interventions in South Africa, especially those that promote community-based risk reduction and prevention, we also need to benefit from what we already know. Key elements that are essential to such a programme and aspects that can be adapted and tailored to local circumstances include:

- Targeting communities at greatest risk from fire
- Developing strong collaborations with individuals and community organisations
- Partnering with local fire departments
- Using local coordinators eg ward councillors
- Developing pre-intervention awareness of the programme
- Door-to-door visits eg using a home visitation programme
- Combining smoke alarm installations with fire safety education
- Providing incentives and recognition for staff and volunteers
- Monitoring and evaluating the programme

Pilot testing of a smoke alarm installation project in Breede Valley

The Provincial Fire and Rescue Services

of the Western Cape have initiated a partnership with the Breede Valley Fire Brigade and Rescue Service to pilot the installation and testing of battery operated smoke alarms in high fire risk dwellings, such as informal settlement shacks. The aim of the project was to learn more about the most appropriate technology to use in the informal settlement environment (photoelectric or ionisation), placement, response from the target communities, challenges and benefits of the programme.

Smoke alarm fire tests

In addition to the partnership with Breede Valley, a collaboration with the Stellenbosch University Department of Civil Engineering has been formed to test the technical requirements and determine the most optimal installation conditions for smoke alarms in high risk communities. For this purpose several shacks were constructed that can be used in a modular way to increase the size of the dwelling or remain as separate units. This was essential so that a number of different tests could be conducted to obtain appropriate data that can be used to learn from and ensure that each new installation project is more successful than the last. The partnership intends to characterise smoke and gas conditions in various locations and levels throughout the dwelling in order to evaluate the response rate of different fire detection technologies and assess the benefits in an informal



The launch of the Western Cape smoke alarm project

► settlement environment. The various scenarios already investigated in this project include cooking and heating smouldering and flaming fires. Neels de Klerk of Breede Valley Fire Brigade and Rescue Service's fire safety division says that, "The aim of the smoke alarm testing is to provide the technical data that can help eliminate fire deaths in informal settlement dwelling units. This can lead to advancements in safety standards, codes and regulations". The modular structures were also used for the training of the installation team members and preparation for the project.

Installation of the smoke alarms

For this project 200 smoke alarms (100 ionisation and 100 photoelectric) were installed randomly within the identified high risk communities. Senior fire fighter Mariëtte Davids, an experienced fire fighter with the Breede Valley Fire Brigade and Rescue Service, was assigned to manage the installation of the smoke alarms in the target communities and in particular the installation team. The installation team were made up of ten members all employed for this purpose through the Expanded

Public Works Programme (EPWP). According to Davids the young contract crew played a huge role in the success of the actual smoke alarm installation project.

The team, who were familiar with the high risk locations, visited each dwelling with the local ward councillor and conducted a home visitation with the adult occupants present. Door to door campaigns such as this allow community members to see and interact with fire fighters in a non-emergency situation. This builds trust in the community and allows fire fighters the opportunity to conduct further site visits when required.

Before the team members actually installed a smoke alarm in a particular household, they obtained the resident's signature on an indemnity form. By signing the indemnity, the resident agreed not to sue the fire department, the city or town, or other organisations involved in the smoke alarm installation programme in the event of an unforeseen problem. In addition, an installation survey allowed the crew to record important information about the dwellings they visited, as well as

the number of smoke alarms they installed or batteries they replaced. The survey was conducted to also gather information on the total number of people living in the dwelling, energy sources used, number of rooms etc. Each smoke alarm was marked with a unique number and a GPS enabled camera was used to take a photograph of the dwelling in which the alarm was installed. Once installed, each smoke alarm was tested in the presence of the occupant. In addition to the free smoke alarms, educational pamphlets were distributed explaining the purpose of the project, what to do when the smoke alarms sounds as well as some basic fire safety tips.

The overall goal of any successful smoke alarm programme is to save lives, therefore monitoring and evaluating the programme's effectiveness is key. Follow-up site visits and base line home surveys are used to determine the extent of behaviour changes and also to check on the condition of the smoke alarms. Providing data on the positive impact and lives saved will be used to obtain further support and funding for the project.

Fires in high-rise buildings: Command strategies

By Ian Schnetler, chief fire officer, City of Cape Town Fire and Rescue Service

In this last of the five part series of articles on high-rise fire fighting strategies, the focus falls on command strategies.

The first arriving engine or ladder units are likely to be the most familiar with the specific characteristics of the involved building, and when they are the first to arrive, they should retain command until the first senior officer arrives.

If possible, company level command can be mobile. The logical place for the initial arriving company officer to establish command in a high-rise is in the lobby. Most of the information needed by command is available in the lobby/fire control room (verification of actual fire and fire location/s, number and conditions of occupants exiting into lobby, location of elevators, status of

fire pumps, stair pressurisation, emergency generators, air handlers, etc).

By locating the initial company level command in the lobby, much unnecessary radio traffic and confusion are eliminated.

Command can communicate directly to crews on the fire floor by stair phone if portables prove ▶

Launching the ground-breaking new initiative to combat informal settlement fire deaths

This new project is a critical component of the Western Cape's Strategic Framework for Fire and Burn Prevention and the roll out of the 'Fire is Everyone's Fight' campaign. The Minister of Local Government, Environmental Affairs and Development Planning, Anton Bredell, launched the ground-breaking new initiative in Worcester recently. Bredell said that "The goal of this new project is to support and capacitate the fire and rescue services to install smoke alarms in our vulnerable communities that will help wake people up before it's too late."

The acting deputy chief, JJ Pretorius, who managed the smoke alarm installation pilot in Breede Valley said, "Smoke alarms clearly provide

the highest level of protection when it comes to early warning from the toxic products of combustion. Ethically, if we are going to provide vulnerable residents with solutions to the fire risk in their dwellings, then we should be offering the same level of protection that we would expect in our own homes!"

Achieving that goal also depends on having working smoke alarms installed in every dwelling and on continuing public education programmes that effectively educate the community about the dangers of fires, and the actions that they can take to ensure their safety. Taken together, these steps will lead to safer homes and fewer injuries and lives lost to fire. Minister Bredell concluded, "This project aims at tackling the scourge of preventable fire deaths proactively

rather than reactively. We know it will save thousands of lives in years to come." As further funding becomes available this innovative project will be rolled out to other high risk communities in the province.

Summary of lessons learned from smoke alarm installation programmes

- Smoke alarm installation programmes effectively reduce fatal and non-fatal residential fire related injuries and are cost saving.
- Because residential fire-related injuries are serious, expensive and often long lasting, even a small decrease in the injury rate more than pays for programmes to increase smoke alarm use.

For further information contact Rodney Eksteen on: rodney.eksteen@westerncape.gov.za ▲

High-rise fires

- ▶ unsatisfactory and to the alarm room by outside line.

At the first indication of actual fire or smoke, command should escalate the response to a minimum make pumps three, with the second and the third make pumps in level-two staging. Command must inform the staging officer what crews and equipment he/she wants in lobby and how many pumps to maintain in staging.

Officers

Four officers to be dispatched to develop and expand an effective command structure inside and outside the building. Assignments will include:

- The first senior officer on-scene should establish an exterior command post. He/she should consider transfer of command and relieve the initial incident commander of the command function and assign that officer to lobby sector only
- The location of the command post should provide the best visual advantage but be clear of any falling glass and debris
- The second arriving officer should report to the command post and assume support officer duties
- The third arriving officer should be assigned to the systems branch
- The fourth arriving officer should be assigned to the fire floor sector

The immediate priorities of the first command officer are:

1. Establish strong command position and transfer command
2. Verify that immediate priorities are being addressed

3. Develop a strategic plan to address, rescue, control fire and property conservation
4. Provide for safety and accountability of fire fighters
5. Develop a strong command organisation
6. Call for additional resources as needed

Expanding the command organisation

A working fire in a high-rise may not be controlled by the initial attack companies. In such a case, the operation becomes prolonged and escalates into a major operation.

A strong organisation is required to support a fire fighting force above ground. The principal objective of this supporting organisation is to provide the fire fighting sectors with resources to operate effectively and to assist in solving some of the major problems involved in high-rise structures.

Command must start to identify and build this organisation as quickly as possible after assigning units needed for initial attack. These elements can be expanded upon as the availability of personnel increases.

The major elements which need to be considered in most working high-rise situations are:

- Fire floor sector
- Lobby control
- Floor above (extension)
- Ventilation
- Resource sector
- Rapid intervention crew(s) (RICs)
- Level II staging
- Floor below (property conservation)

- Evacuation
- Rehabilitation
- Safety
- Public information officer (PIO)
- Occupant services
- Systems branch (fire panel, stairwell, phones/communications, elevators, keys, building representative/engineer)

In addition to these elements, many or all of the sector functions associated with standard operations may be required.

Staging

Standard level I staging will be used by all first alarm companies. Level II staging should be established by command when requesting multiple alarms. Any apparatus parked in close proximity to the building, by companies assigned to the interior, should be moved to a level II area as time permits.

No apparatus should be parked within 60 metres of the building. All apparatus should remain in this staging area unless needed for a specific purpose. Enclosed vehicles may be employed to move personnel and equipment from the staging area to the building.

Resource sector/branch

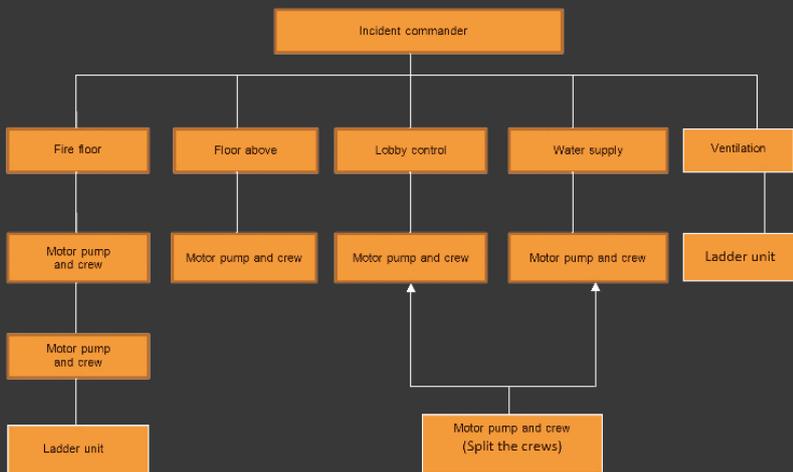
Early establishment of a resource sector/branch is essential to reduce the time factor in placing fire crews in fire attack positions. As soon as a resource sector is established, fire fighting personnel and portable equipment ie self-contained breathing apparatus (SCBA), hose, tools, etc should be immediately deployed from staging to the resource sector.

Rapid intervention crews

Rapid intervention crews (RICs) will be maintained in the resource sector. At least one four-member crew will be assigned this duty. Additional RICs may be assigned to other locations as needed.

Systems branch

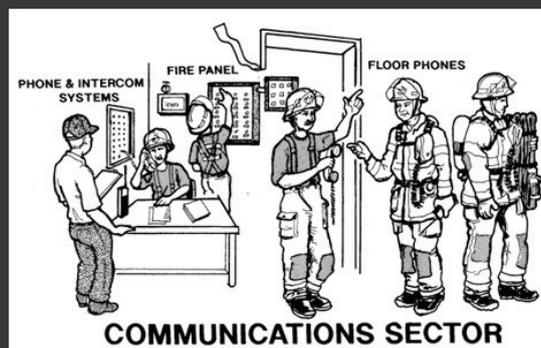
The systems branch should be implemented early during a working high-rise fire. The systems branch officer will be responsible for managing the following sectors:



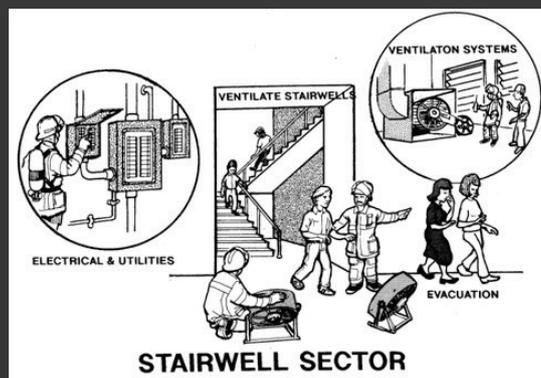
Lobby sector: The lobby sector will be responsible for elevators (control and track), liaison with building engineers, organise lobby for transition of evacuation, resources, treatment and fire fighter access, remote air (utility trucks)



Communications sector: The communications sector will be responsible for phone systems, intercom systems, fire panel, making sure all floors have communication where needed.

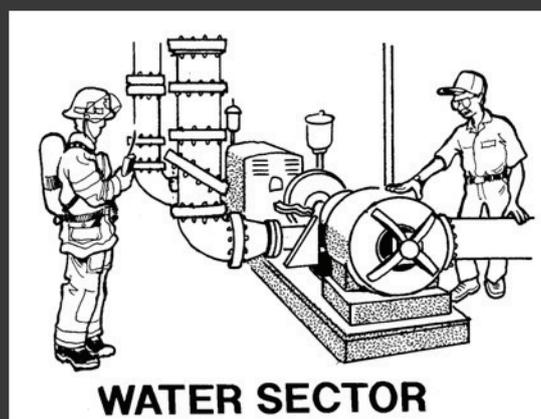


Stairwell sector: Stairwell sector will be responsible for selecting evacuation and fire fighting stairwells, pressurisation by building systems or fans, all electrical and other utilities to the building, all ventilation systems for building heating, ventilating, air-conditioning (HVAC), verify auto stair door unlocking.



Communications and communications equipment play a major part of ensuring personnel in high rise buildings, particularly where there may be basement levels involved, keep in contact with each other and the various levels or sectors deployed. Standard new technology digital type (trunked) portable radios may not work due to the densities and types of building materials used, which effectively block radio signals or weaken them considerably. Use of local mode and placement of personnel at strategic points in the building may have to be utilised as radio relays, to ensure messages are being sent and received at the various command levels.

Water sector: The water sector will be responsible for building fire pumps, all connections internal and external, generator, restrictors and pressure reducers.



Campaign fire

Campaign situations are those incidents that require large forces of personnel and equipment to control and continue for long periods of time. A campaign situation in a high-rise fire would be a fire involving an entire floor or more. The commitment

of personnel to fire fighting may require several sectors for tactical supervision and a full array of supporting sectors, branches and sections would be activated.

As the incident escalates to a campaign event, the command organisation must continue to expand. All section level positions ie operations, planning, logistics

and administration will need to be implemented and staffed. Furthermore, additional branch levels may be needed.

A communications plan for channel allocation must be established. Logistics will require its own channel. Each branch should have its own separate channel when practical. The accountability officers and each of the section level operations may require a separate radio channel. If separate channels are not possible, then components should be concisely grouped to provide for the most effective use of the channels available.

Senior officers

Additional senior officers will be required as the incident escalates. Command must ensure that adequate senior officers are especially called or recalled from normal day to day activities.

In addition to these elements, a standard array of staff function sectors would be established and report to command. Most of these (PIO, safety and liaison) are established automatically by arriving staff personnel. Senior command staff would provide support at the command post as necessary.

The incident command system (ICS) should be implemented to the degree of need of the incident and escalate or de-escalate as the incident dictates.

This then concludes the five part series of articles on fires in high-rise buildings. We trust that the readers found it interesting and of benefit.

Additional references

- NFPA 1561 – Standard on Emergency Services Incident Management Systems
- Occupational Health and Safety Act, 65 of 1993
- Fire and Rescue "Field Guide" 2005 Sixth Edition
- Glendale, Phoenix and Salt River Fire Departments
- New Braunfels Fire and Rescue Service

Firebreak construction equipment and associated risks

By Rob Erasmus, Enviro Wildfire Services



Firebreak construction using a drip torch
Photo: Rob Erasmus

Wildfires started by teams constructing and maintaining firebreaks is not an uncommon occurrence. In almost all cases such fires should have been prevented had reasonable steps and precautionary measures been in place, avoiding loss of life and damage to property.

While the subject of the effect of firebreaks is often a hotly debated issue and where it is known that they have little or no effect on a rapidly advancing fire, they can and do fulfil a crucial role in wildfire management. This article is not to debate the merits of firebreaks and will be saved for a future discussion.

Numerous options to establish and maintain firebreaks are available to land managers with the specific type, method and technique being influenced by numerous

factors, including available time, budgets, access to manpower and resources, terrain, vegetation type and age, prevailing fire season weather conditions and the objective of the firebreak. This article serves to discuss equipment options and the associated risks.

Burning of firebreaks

Annual burning of firebreaks is a very effective wildfire spread control technique in certain parts of the country and is governed by numerous sections in Chapter 4 of the National Veld and Forest Fire Act.

Burning can be undertaken with a relatively small crew and limited resources when carried out in close proximity or alongside existing roads. Two skid units (bakkie sakkies) and a crew of eight with beaters, knapsack sprayers and possibly a backpack blower, can safely burn long tracks of firebreaks per day. A back up water tanker (2000 litres) is a handy resource to have available to resupply the skid units without them having to leave the site. A word of caution when using the backpack blowers. If used incorrectly they can cause the unwanted spreading of the fire and it is strongly recommended that only experienced crew be used to operate such machinery. The same goes for those using the drip torches or gas ignitors. It is strongly advised when burning along roads to have crew with red warning flags positioned well before and after the working teams to warn motorists to slow down due to possible smoke and crew active in the road way.

Mechanical clearing

Mechanical techniques include the use of tractor-drawn brushcutters and two-stroke motor brushcutters and weed eaters. The inherent risk when using such equipment



Firebreak construction using a backpack blower

Photo: Rob Erasmus



Skid units and trailer

is the metal blade striking a rock and causing sparks, which can ignite surrounding fine-fuel vegetation resulting in a runaway fire. It cannot be stressed enough of the need to have suitable fire fighting equipment and dedicated crew on hand ie within 20 metres whenever such equipment is being used. Such crew and equipment should consist of a minimum of two fire fighters, one knapsack spray tank and a fire beater. Both crews should be equipped with personal protective equipment (PPE).

In the past two years we have investigated at least five fires that were started by teams working on firebreaks, resulting in extensive damage and a loss of life. The use of slashers (kap messe) is also used in thicker vegetation when establishing firebreaks and again sparks can be caused when the blade strikes a rock.

When using chainsaws, it is strongly advised that the condition of the machines be checked prior to use to ensure that the spark-arrestors (a filter in the exhaust system) is in place and serviceable. There have been cases where contractors have been found by a court to have been negligent as a result of fires that have been started by poorly maintained chainsaws.

Precautionary measures when using chainsaws and other machinery include a well-managed refuelling and servicing area with a ground sheet that is clear of fine fuels and that has a suitable fire extinguisher (minimum of a 4,5kg dry chemical powder (DCP) or 5kg CO₂) on hand, as well as basic fire fighting equipment.

Associated sites for stockpiling equipment and/or used for lunch-tea breaks should likewise be equipped with basic fire fighting equipment. In cases where a campsite is established for multi-day operations, a 500-litre water trailer with pump and 60m dragline fire hose is recommended, which should be stationed in proximity to the kitchen/cooking fire area. Wherever possible, open fires should be avoided and use made of gas cookers.

Time of year

Where possible, firebreaks should not be constructed or maintained on high fire risk days such as high yellow,



Burning along a road

Photo: Rob Erasmus

orange or red fire danger index (FDI) days, ie when the FDI is higher than 50 and managers should make efforts to undertake these operations well in advance of the fire season. This, unless comprehensive fire fighting resources are on site to assist, should an accident happen.

It is a fact that establishing and maintaining firebreaks is a legal requirement. Such undertakings need to be done in a responsible manner and we urge all managers to take suitable preventative steps when carrying out these tasks. The implications, if found to have been negligent, can be far reaching. ⚠

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Fire station planning principles: choosing a site

By Previn D Govender, divisional head: strategy and planning, City of Ekurhuleni Disaster and Emergency Management Services



As much as a fire station is a community public safety facility, cognisance of the 24 hour nature of a fire station must be a factor

This is the last part in the four part series of articles on fire station planning principles in which we looked at the strategic location of fire stations while proposing a new benchmark criterion for the planning and siting of fire stations that is based on built upon area rather than risk as described in the South African National Standards (SANS) 10090. This part focuses on choosing a site by evaluating site functionality and location.

Site functionality

Notwithstanding that it may be extremely difficult to obtain the ideal site for the positioning of a fire station, the generic factors that must underpin choosing a site and ensuring suitability for operational and compliance performance are:

The site location should strive to achieve optimal equidistant response ability within the built upon area to be protected.

It should be level with the street in order to increase the safety factor associated with response turnout.

The site must allow for the actual siting of the fire station to be as close to the street front as possible in order to allow for immediate apron

connectivity to the roadway and to maximise backyard utilisation for training, maintenance and other purposes. This is in order to increase visible awareness and to maximise site usage potential for immediate and future needs.

The apron of the station must exit directly onto the road and the length of travel on the apron to the roadway should not be longer than the length of two standard fire apparatus. This is in order to minimise turnout times and improve overall attendance times as well contribute to the visible awareness and safety factors as the apparatus exits the engine bay.

Emergency response of fire apparatus should not be uphill or downhill on immediate exit from engine bay apron. This is to reduce impact on engine labouring and strain on braking systems and to allow for sufficient warm up of vehicle systems in order to sustain vehicle performance and improve the vehicle and response safety factor.

The site should not be located too far away from arterial access routes as this will have significant impact on travel times and ultimately on the ability of meeting the required attendance time.

The locality should not abut or be adjacent to any other facility, occupancy or institution that could pose an environmental, contagion or security risk to the operational and/or emergency management ability of the fire station. This factor is important in order to ensure full functionality of a fire station, especially as it pertains to its continuity of usage as an emergency management facility during major incidents.

Other factors that should also be considered depending on area and information gathered from spatial development frameworks (SDFs) and other development plans and that could be used as advantageous opportunities for improving response times, may include:

- a. Engagement with the transport authority for possible alignment of the site with any planned bus rapid transport trunk routes (BRT), especially in high intensity development areas so as to enable usage of the BRT lanes as 'fire lanes' during response.
- b. Exploration with the roads authority for road design consideration within the road reserve abutting a fire station that would facilitate reasonable, fast and safe entry into the public road system.
- c. Upfront and programmed reservation of strategic sites in spatial developmental plans and

frameworks that will provide for travel time compliance in the geography of the area to be developed.

d. Further, locating a fire station too far away from arterial access routes will have significant impact on travel times and ultimately on the ability of meeting the required attendance time.

Site location

As much as a fire station is a community public safety facility, cognisance of the 24 hour nature of a fire station must be a factor of choosing its location once the possible locations have been computed.

Some key factors that need consideration when deciding on the locale of a fire station must be the impact the nature of a 24 hour service will have on surrounding environments.

Some of these considerations include:

a. The road traffic safety requirement that when entering and travelling on the public road network during an emergency turnout and response active warning systems ie audio and visual warning devices, must be in operation.

b. Engine and equipment start up noise during regular fleet and portable equipment checks, which also includes the testing of active warning systems.

c. Acceleration noise on turnout during a response of one or more vehicles and the return to station of emergency units at any hour of day and night and the subsequent inventory checks that are performed, which will generate noise and other form of disturbances.

d. The use of the facility during major emergencies for purposes of a reception and departure centre during major emergencies and/or disasters or apparatus staging for major incidents and mutual aid response teams.

e. Radio communication infrastructure that may create frequency/wave interference or that may be interfered with by other private communication infrastructure in the proximity.

It will therefore require a deliberate effort to avoid locating a station amongst residential dwellings or where there is a possibility that future residential, institutional or business development

may encroach on the 24 hour operational functionality of a fire station.

Conclusion

In the pursuit to optimise the planned location of fire stations, it is necessary that there is engagement from the very beginning with key municipal town planning, human settlement and engineering departments at the very least.

Whilst these engagements are critical in order to optimise planning, such engagements should not derail from the objective that community protection against fire must prevail.

The attendance time standard for community-centric fire response suggested herein affirms a position that future planned fire stations should not be attached to paper-based areas and regional compartmentalisation, as this will always be subject to change.

Instead, locating of fire stations must always be focused on protection of

built upon areas and must promote turnout overlaps between stations in order to ensure best emergency services response coverage in the shortest possible travel time.

The variable ranges of risk, maximum required travel times and estimated speed of appliance, distance, resultant coverage areas and resultant average travel time to actually cover the road kilometres, must feature as necessary factors that achieve and maintain turnout overlap.

There must also be a move away from a one size fits all type of station and instead focus on decentralising coverage areas by establishing and distributing more smaller or medium type stations around built-upon areas which in turn promotes the convergence principle that at any time a station is able to strive towards meeting the attendance time standard of being able to attend to any type of structural fire within a built-upon area in 10 minutes or less. 



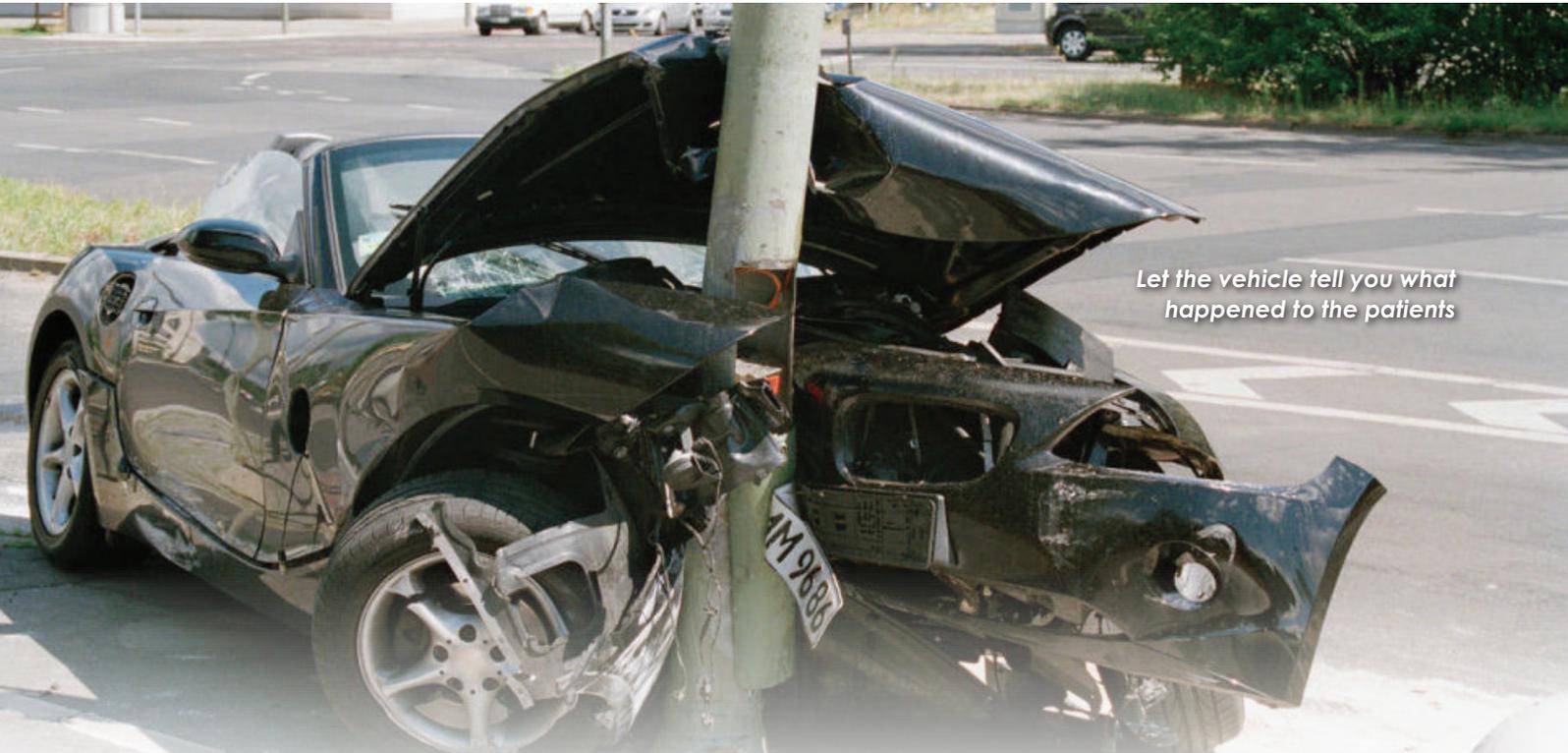
The apron of the station must exit directly onto the road



Emergency response of fire apparatus should not be uphill or downhill on immediate exit from engine bay apron

Vehicle extrication: let the vehicle show you what happen to your patients?

By Neville van Rensburg and Julius Fleischman, World Rescue Organisation (WRO) assessors and members



Let the vehicle tell you what happened to the patients

In any accident scene, rapid removal of the casualty to hospital improves their chances of survival. The term the 'Golden Hour' was first introduced in 1961 but because of misinterpretation as to what period this actually referred to, a second

concept, the 'Platinum Ten Minutes' was proposed as the time taken to move a casualty to the ambulance.

To achieve this rapid removal, the fire fighter's paramedic must work in harmony with the police and fire service

to secure the scene and remove the casualty safely without causing injury either to the casualty or other personnel on the scene. Care should also be taken to preserve evidence at the scene for future investigation.

On arrival at accidents, it is important to understand that the vehicles involved tell us a story. They tell us what they do to our patients, whether trapped or injured. When we approach the vehicle, it's important that we look at the scene, position of vehicles and damage to these vehicles.

The question arises, who really look at the steering wheel for deformation? Why? Because that will indicate to us whether there are chest injuries. The same goes for the occupants that sit in the back of the vehicle. Do we realise that, according to the vehicle extrication techniques taught by Holmatro, there are four separate collisions occurring in sequence, which are as follows:

- The car hits a solid immovable object eg tree

Crash Information						
Impact Location	Front	Left Side	Right Side	Y	N	
	Rear	Rollover	Multiple Impacts			
Narrow Object Impact	Y	N	Was Crash Incompatible	Y	N	
Crash Severity	Mild (1-8")	Moderate (9"-16")	Severe (>16")			
	<div style="display: flex; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; margin-right: 10px;">Circle Direction of Impact (PDOF)</div>  </div>			Visible intrusion of interior components		
				Roof Crushed	Y	N

Crash information

- The occupants hit the vehicle structure
- The occupants' internal organs continue to move causing tearing before impacting on the abdominal wall
- Unrestrained objects in the vehicle continue to travel and may strike the occupants causing further injury

The latter point makes you think how many times have we seen patients sitting in the back and thought that they could have hit the seat or passenger in the front? As we say, the vehicle talks to you. It's important that we look at the vehicle.

A useful way is to look at the vehicle as if it was a clock. For instance, 12 refers to the front the vehicle, three refers to the driver's side, six references the rear and nine the passenger's side. This will guide you to estimate the impact speed. Also note the type of collision ie frontal impact, T-bone impact, rear impact or rollover.

Also note the following conditions:

- Windshield bulls eyes
- Air bags that's deployed
- Steering wheel bend or normal
- Front wheel axes that's moved
- Tensions, torsions and flexion on pillars
- Dashboard inside vehicle
- Damage to the shell of the vehicle

You need to know the details prior to any distanglement as it will assist you with which way to follow and what plan A and B to needs to be.

Paramedics also need to identify the impact zones as it will convey what injuries can be expected from the patient and what to look for when performing the patient's primary and secondary survey.

Ask yourself whether you have looked at all of the above at the recent accident scenes you attend to. Seat belts damage the liver. Do we look at seat belts or the marks left by safety belts on the patients? Do we keep in mind that the patient's liver could be injured? Do we take the size of the patient in consideration during our size up and evaluation?

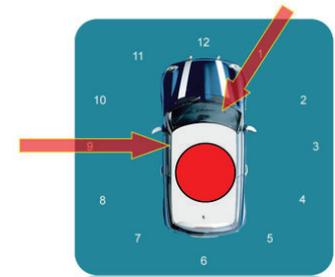
The vehicle gives us all these clues; we must just look at them, record them.

The fire fighter's paramedic will also need to look out from the inside. Starting from the casualty, he or she will look for lack of airway control, asphyxiation, impalement, entanglement, entrapment and possible tamponed of abdominal hemorrhage by a steering wheel. He will look at the seat; does it recline, does it slide, is it powered?

He needs to decide the extrication path ie the direction in which the casualty is removed from the vehicle. This will need to be cleared before the casualty is disentrapped. Medical procedures such as ketamine anesthesia may be needed for disentrapment and the situation of the casualty who then becomes unstable following the procedure and yet cannot be extricated from the vehicle, needs to be avoided at all costs.

There are seven options available as extrication paths from the vehicle (fig 1). There is little doubt that the first choice is the extrication to the rear but a variety of factors may prevent this. Generally, the other extrication paths are numbered in order of decreasing ease and favour. This is another area where the guidance of the medical personnel will be important.

Doctors and paramedics involved in road traffic crashes need to be familiar with extrication technique just as fire fighters need a greater



PDOF = Principle Direction of Force

Principal direction of force

understanding of the physiological effects their procedures can have on crash victims. Joint training is required to overcome the current deficiencies.

Conclusion

The fire fighter's paramedic's service has developed a variety of techniques to enable them to extricate a casualty from a wrecked motor car. These methods have indications, contraindications, special precautions and side effects in the same manner as any other therapeutic intervention. However, because of their intimate proximity, neither vehicle nor casualty can be considered in isolation but all too often there has been a lack of consultation at the development stage between extrication experts and pre-hospital care practitioners.

References

- International Emergency Technical Response Institute
- Journal Emergency Medicine

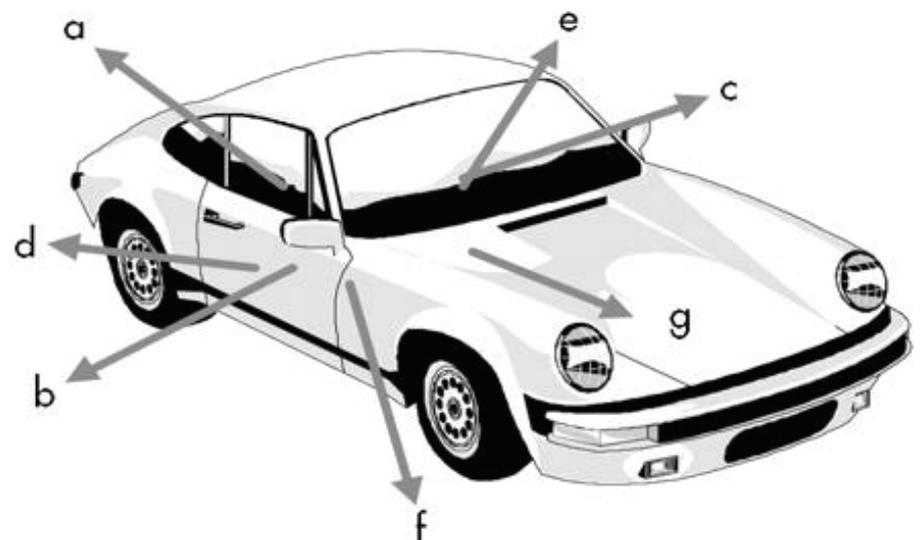


Figure 1: Potential vehicle extrication paths: (a) long board out to rear; rapid extrication, driver's door; (c) rapid extrication, opposite door; (d) long board and KED rear quarter oblique; (e) long board and KED rear quarter contralateral oblique; (f) long board and KED feed first front quarter oblique; (g) appropriate for minibuses without a front mounted engine.

Zero talent Part 2

By Wayne Bailey

In my last article, we discussed the idea some people have zero talent. I know this doesn't apply to you, however, I bet you can name a few people that are not the sharpest tool in the shed, are a few bricks shy of a load and not playing with a full deck.

Well, there's still hope for them using your help. Below are some bullets that will cause people to notice you and put a little skip in your step. Mandy Hale said, "So you're a little weird? Work it! A little different? OWN it! Better to be a nerd than one of the herd!"

Let's get started.

4. Body language

According to wikihow.com, there are five basic body languages. Crying, anger and or a threat, anxiety, expression of embarrassment and manifestation of pride. Let's discuss crying in the body language. Dionne Warwick the singer said: "Crying is cleansing. There's a reason for tears, happiness or sadness", so crying can be a positive sign. Maybe a sign that healing is beginning. There have been times I have bent over double laughing so hard, I've had tears in my eyes. Same issue when I peel an onion. That's not what I'm talking about. Tears can be a sign of sad news or the news of someone dying that's close to you. Crying can also be faked. A method to get sympathy from someone or from a group of people. This is also known as 'crocodile tears'. An urban legend says a crocodile cries when they catch their prey.

Next is anger or a threat. This body language reflects tightly closed arms and a turned down mouth. Another sign is when the eyebrows are in a V shape. Different people express this in many ways including body stiffing. Buddha said, "Holding on to anger is like grasping a hot coal with the intent of throwing it at someone else; you are the one who gets burned." The signs of anxiety can be seen in the

face. The eyes may be blinking more than usual and the mouth tightly closed causing a line when the two lips come together. Have you ever heard someone pecking a pencil on the desk while taking a test? Tapping their feet making a tapping sound? All signs of anxiety.

The next sign is feeling embarrassed. Again, let's go to the face. There could be a smile and frown back to back or not making eye contact with you or their audience. The eyes may be looking down making an attempt to hide an emotion. Joyce Brothers said, "Accept that all of us can be hurt; that all of us can and surely will at times fail. Other vulnerabilities, like being embarrassed or risking love, can be terrifying, too. I think we should follow a simple rule, if we can take the worst, take the risk."

Next is pride. We all have pride in our life. The pride of seeing a son or daughter do well in sports or in academics. The pride of your department working well together on and off the fire ground. That's not what I'm talking about. Pride can get us in trouble sometimes. A sign is someone putting their hands on their hips and displaying a small smile while tilting their head backwards. Will Rogers said it best, "Too many people spend money they earned to buy things they don't like." I overheard a conversation at a fire station once. The fire fighter was asked how much did they pay for their new engine? He said, not sure but it was \$100 000 US dollars more than they neighbouring department engine. If we're spending money we don't have just to look better than our competition, something is wrong with our thinking.

5. Energy

The Free Dictionary definition of energy is the capacity for work or vigorous activity, intensity or vitality of action or expression; forcefulness. Also capacity or tendency for intense activity, vigour or vigorous or intense action and exertion.



Wayne Bailey

When you enter a room to speak or for a meeting, you must take ownership of your body and the space you occupy. I was watching a talent show and the judges told the participant they owned the staged. When you speak, speak clearly and make contact with your audience or to the person if it's one- on-one and own your own stage.

6. Attitude

John C Maxwell said, "People may hear your words but they feel your attitude." Having the right attitude causes your words to be on steroids. Thomas Jefferson, an American Founding Father and the principal author of the Declaration of Independence, said, "Nothing can stop the man with the right mental attitude from achieving his goal; nothing on earth can help the man with the wrong mental attitude." He was also elected the second vice president of the United States, serving under John Adams and in 1800, was elected the third president. President Jefferson's quote is about positive and negative attitudes.

If you're reading this article, more than likely you have a positive attitude. You're looking for nuggets to better yourself and propel to the next level or promotion. I've never seen anyone be promoted to a chief or chief officer and their attitude be negative.

I was reading from a blog at iqmatrix.com recently and it said that the words you say and the attitude you

Fire fighting helmets, a protection tradition

For centuries, fire fighters have worn helmets to protect them from heat, cinders and falling objects. Although the shape of most fire helmets has changed little over the years, their composition has evolved from traditional leather to metals including brass, nickel and aluminium, to composite helmets constructed of lightweight polymers and other plastics.

Shortly after the formation of fire wards or brigades in larger American cities, it became clear that specialised clothing and headgear were needed to protect those who were on the front lines. Like military units before them, fire brigades adopted helmets during the mid-18th century.

The first fire cap design is credited to Jacobus Turck, a New York gunsmith, who created the leather stovepipe-shaped hat in New York City around

1740. Turck developed America's first fire hat for the Fire Department of New York (FDNY) in order to distinguish the department from competitors. The form was improved by Matthew DuBois, who included iron wire along the rim to stabilise its shape and provide further heat resistance.

In 1828, Henry T Gratacap, a foreman in the New York City Fire Department, is credited with the creation of the traditional American fire helmet. Gratacap, was among the most well-known early fire-helmet makers. Opening his business in 1836, Gratacap was the main producer of New York City fire hats for the next three decades. He called it the 'New Yorker'. FDNY adopted the helmet in the late 1800s.

The New Yorker helmet along with the eagle and leather ID badges are all part of fire fighter tradition and ▶



A late 19th/early 20th Century brass 'Merryweather' fireman's helmet

bring forth into every situation you come up on, can create positive expectations or they can create negative expectations. If you think you can, you are right and if you think you can't, you are also right.

In order to stop having a negative mental attitude, be careful of the language you use. The blog gave a couple of ways in doing this.

- a. You can lower the intensity of the negative words you use.
- b. You can change negative words into positive words using the following phrases:
 - Problems become opportunities
 - Always and never become sometimes and rarely
 - Bad decision becomes uneducated decision
 - Mistakes become an education

In closing, a writer, Peter Barron Stark, wrote a leadership article about Thomas Watson, the founder of IBM. Watson believed in the concept of failing

forward. Make a mistake and learn from it was his mind-set. One of Watson's most famous quotes is, "The way to succeed is to double your error rate."

Barron went on to tell the story of an IBM employee. He made a mistake that cost the company about a million dollars. Now, this was big money back in 1940 when all this happened. The

employee just knew he would be fired and wrote his letter of resignation. He handed the letter to Watson and he responded: "Fire you? I've just invested one million dollars in your education and you think I'm going to fire you?"

Sometimes education doesn't come with a diploma; it comes from the school of hard knocks. 🔥

Talent wins games, but
teamwork and intelligence
wins championships.

Michael Jordan

@quibarnard



The MSA Gallet F1 XF structural fire helmet



Rosenbauer's Heros Xtreme and Heros Smart fire fighting helmets

► are used to this day in traditional leather fire fighter helmets. These frontspieces generally featured their owner's position, brigade number and unit location. Often stitched from tooled leather pieces, helmet shields also included painted images of hoses, ladders or engines, depending on the unit's assignment.

Other fire hat styles were made from pressed felt, wool or papier-mâché, though these were typically better for identification than protection.

It is possible the idea for the new headgear came from jockeys who wore their caps backward. The helmet had a lengthened rear brim and curved sides. They also included elaborate front-pieces that identified the name of the company. This head

covering provided protection from falling debris and prevented water from running down the firemen's neck. When worn backwards, the lengthened brim helped deflect heat from the face. Not only was it useful on the head but it served other purposes as well. Firemen often used the helmet to break windows or provide ventilation. Trapped fire fighters threw it out of windows or off of roofs to indicate help was needed. Gratacap's helmet has been used for many years.

During the 19th Century, special presentation helmets became popular for retirement or promotion ceremonies. The metal shield fronts of these special helmets were sometimes hand-painted with floral designs and gilded patterns.

Gratacap created one of the most famous presentation helmets for a Sacramento fireman using a silver-and-gold frontispiece inlaid with gemstones; the headgear cost around \$1 350, at a time when most fire helmets were closer to \$4.

Two brothers, Jasper and Henry Cairns, purchased Gratacap's business in 1868 and mounted a leather identification badge to the front of Gratacap's helmet. Those early helmets had an eagle sculpted on the fire helmet as a memorial for a fallen fire fighter in the early 1800s. They later incorporated perforations into the design of their products to provide better ventilation. Renamed Cairns and Brother, the company also created the popular low-crown shape during the 1930s, which removed the shield holder entirely to shorten the cap's peak by two inches. After World War II, chin straps and face visors were added to improve the fire cap's protective capabilities. Most of these newer helmets incorporated synthetic materials and streamlined shapes.

Helmet colours indicated rank or position in a specific brigade: White was reserved for chief engineers, black brims on white caps were worn by fire wardens, red helmets were worn by firemen in hook-and-ladder companies and black hats were donned by members of engine companies.

'Leatherhead' helmet

Leatherhead is a term for old style leather helmets used by many fire fighters in North America. Leatherhead is also slang for a fire fighter who uses a leather helmet. The leather helmet is an international symbol of fire fighters dating to the early years of fire fighting. Typically, traditional leather helmets have a brass eagle adornment affixed to the helmet's top front of the helmet to secure a leather shield to the helmet front. Leather helmets have fallen into disuse, only seeing use in some fire departments in North America, such as New York and Houston. Canadian fire departments such as Toronto Fire Services that use the Leatherhead have a beaver in place of the eagle for the brass adornment.



Migeod leather fire helmet with lion finial



Rare fox finial Cairns leather fire helmet



French fire helmet 'Srs. Pompiers de Perpignan'



Aluminium helmet



A Dräger smoke helmet in the German fire service museum



British Airports Authority Fire Service black leather helmet



Rare Merryweather Firemans Helmet 1880



Historical fire fighter helmet of Russia



Vintage black leather Isle of Wight Fire Brigade



Fire Service Cork Leather Helmet Pilkington



Henry Gratacap's 'New Yorker'



Nederland 1975

Brass eagle and beaver

The eagle's origins can be traced to approximately 1825. An unknown sculptor created a commemorative figure for a volunteer fire fighter's grave. Fire fighters did not wear eagles before that but eagles became associated with fire helmets ever since. The beaver ornament adorning on many Canadian fire fighters' helmets is said to represent fire fighters' relentless hard work, focused mission and undying dedication.

These ornaments protrude from the helmet and can catch on window sashes, wires and other obstacles, frequently leading to damage. As a result, many fire departments provide traditional helmets using modern plastic and composite helmets without eagles or beavers, jokingly referred to as salad bowls, turtle shells and slick tops due to

their streamlined shape. However, several fire fighters and fire departments still retain the leather helmet as a matter of tradition.

Tyndall's hood

In 1871, British physicist John Tyndall wrote about his new invention, a fireman's respirator, featuring a valve chamber and filter tube. This device used cotton saturated with glycerine, lime and charcoal to filter smoke particles and neutralise carbonic acid. The device was featured in the July 1875 issue of *Manufacturer and Builder*.

Neally's smoke-excluding mask

George Neally patented a smoke-excluding mask in 1877 that he marketed to fire departments. This device featured a face mask with glass eyepieces and rubber tubes, allowing respiration through a filter carried on the chest.

Merriman's smoke mask

A Denver fire fighter known as Merriman invented an early hose mask that was featured in the 7 January 1892 issue of *Fireman's Herald*. This respirator featured a tube like that of an elephant trunk connected to an air hose that ran parallel to the fire fighter's water hose.

Loeb respirator

Bernhard Loeb of Berlin patented a respirator (US patent #533854) in 1895 that featured a triple-chambered canister carried on the waist that contained liquid chemicals, granulated charcoal and wadding. This respirator was used by the Brooklyn Fire Department.

Dräger smoke helmet

Invented in 1903 by Dräger & Gerling of Lübeck, Germany, the smoke helmet was a fully enclosed metal helmet with glass face mask, ▶

- ▶ featuring two breathing bags covered by a leather flap worn over the chest. This respirator became so critical to mine rescue operations that rescue workers became known as draegermen.

Napoleonic helmets

Napoleon Bonaparte reordered the various fire fighting organisations in Paris (and later other cities) into a unit of the French Army called the Sapeurs-pompiers. They wore a brass helmet with a high central crest, similar to that worn by dragoon cavalry, with a frontal plate on which a badge representing their city was embossed. This style of helmet was widely copied across Europe and beyond.

Merryweather helmet

Merryweather helmets were used by British fire brigades from the Victorian era until well into the 20th century. These helmets were modelled on the helmets of the Sapeurs-pompiers, which Captain Sir Eyre Massey Shaw had seen on a visit to Paris and introduced to the Metropolitan Fire Brigade in London in 1868, replacing a black leather helmet. The design was widely copied by other British and British Empire fire services. These helmets were made of brass but those belonging to officers were silver plated. Metal helmets are conductive, a safety hazard as use of electricity became widespread and so a new helmet made from a composite of cork and rubber was introduced in London and elsewhere from 1936.

However, during World War II, military-style steel helmets were adopted, similar to the Brodie helmet used by the British Army, to improve protection during air raids. A composite helmet was reintroduced after the end of the war. Traditional brass helmets remained in service in Queensland, Australia, until 1970.

Aluminium helmets

Helmets made of aluminium also appeared toward the end of the 19th Century but were much rarer because of the cost of the material. Some departments, such

as the Buffalo Fire Department for example, used aluminium helmets up to the mid-1980s.

German DIN fire helmet

In Germany, many fire brigades still use the old German DIN fire helmet. Early on, this helmet was simply an aluminium alloy version of the M1943 Stahlhelm used by the Wehrmacht, standardised in 1956 and normed in 1964 by DIN 14940. The material was AL-CU-MG, normed by DIN 1725. At about 800g, it was lighter than most fire fighting helmets.

The colour was Wehrmacht black in the beginning or red in Bavaria. The norming process of the 1960s changed colour to a fluorescent lime yellow. This helmet uses a white reflecting stripe and black leather neck protection. Most fire brigades use this helmet with an easily mountable visor.

The German DIN fire helmet does not correspond to the currently valid European EN 443 standard for fire helmets due to its conductivity. German fire brigades are allowed to use existing aluminium DIN fire helmets but if new helmets are necessary, fire fighters must purchase either composite or a newly developed version of the old helmet with EN 443-compatible coating. At about 900g, coated aluminium helmets are still relatively lightweight. Some manufacturers currently produce fire helmets constructed of glass fibre reinforced plastic, replicating the look of old German DIN fire helmets. However, it is not uncommon that fire brigades move to modern helmets.

Modern composite helmets

F1 helmet

The F1 helmet is a modern fire fighting helmet made in France by Gallet, a subsidiary of MSA Safety. In service since 1985, the F1 helmet provides protection against impact, fire and electricity, fulfilling EN 443 European standard.

The F1 was an answer to requirements of the Paris Fire Brigade for replacement of the previous helmet (Casque modele 1933 was similar to the Merryweather)

that dated to 1933; these helmets provided insufficient protection for the face and back of the head and were not thermally insulated. The F1 helmet is handmade using synthetic materials often covered with galvanised nickel. These helmets can accommodate communication systems and other accessories.

The F1 has been used by the Paris Fire Brigade since August 1985 and has been widely adopted by all French fire services, gaining export success in more than 85 countries including fire departments in Switzerland, the United Kingdom, Hong Kong, Canada and Japan (notably in Tokyo).

Modern structural helmet

Modern structural helmets (that is, those intended for structure fires) are made of thermoplastic or composite materials. The rear brim is longer than the front brim; a face shield(s) is usually attached to the front. This helmet type is worn in the United States and Canada as well as the United Kingdom, Australia and parts of Asia (notably Hong Kong, Macau, Taiwan, and Guangzhou). Newer 'Metro' helmets, the name given by several leading helmet manufacturers, with smaller brims and rounded edges are also much lighter than both leather and composite traditional helmets.

"Although safety standards have dramatically changed the interior, the exterior of a leather helmet manufactured today as well as the classically shaped plastic versions, would no doubt be recognisable by Henry Gratacap or the original Cairns brothers. In a world where change seems to be the only constant, that the basic design of the fire helmet could remain intact for 177 years is nothing short of amazing, said Gary R Ryman, author of the book 'Mayday! Firefighter down'.

There are numerous manufacturers of state-of-the-art fire fighting helmets today, which include high technology in order to keep fire fighters safe, while integrating communication systems and self-contained breathing apparatus in a comfortable fit. The choice is yours! 

2016

October

3 – 7 October

EMS World Expo 2016

North America's largest EMS conference and trade show, EMS World Expo, hosted in partnership with NAEMT, will bring over 5 100 EMS professionals together in New Orleans for an industry-leading event

Venue: New Orleans, Louisiana

For more information visit:

www.emsworldexpo.com/

6 – 8 October 2016

Florian 2016

Trade fair for fire brigades, fire and disaster control

Venue: Dresden, Germany

For more information visit:

www.messe-florian.de/en/

7 October 2016

Marsh fire fighter challenge

Venue: SA Emergency Care, Modderfontein

Contact: Marlene van der Merwe

Email: marlene@crm-training.co.za

Tel: 011 060 7585

11 – 14 October 2016

Firetech 2016

International trade fair. Fire fighting and fire extinguishing rescue equipment, fire fighting, automatic guarding machinery, protection of buildings and constructions, personal protection, radiation control facilities

Venue: Kyiv, Ukraine

For more information visit:

www.iec-expo.com.ua/en/

15 October 2016

World Trauma Day

Commemoration of World Trauma Day emphasises the importance of saving and protecting a life during the most critical moments and preparing and applying critical measures to deal with and avoid trauma fatalities

Venue: SAEC in Modderfontein

Contact: Amanda Klette, trauma programme manager, Netcare Union Hospital.

Email: amanda.klette@netcare.co.za

Tel: 011 724 2225

18 – 20 October 2016

Firehouse Expo 2016

Firehouse Expo is the can't-miss event for firefighting professionals. More than 10,000 firefighters, chiefs, captains, lieutenants and more will meet in Music City to hone their skills, become familiar with the latest gear and equipment and gain new expertise to advance their careers. This year, for the first time, Firehouse Expo will be held in Nashville

Venue: Nashville

Contact: FirehouseExpo@xpressreg.net

24 – 26 October 2016

NMMU George and SAIF Fire Management Symposium

The focus of this year's event will be on scientific solutions and management of wildfire risk

Venue: Skukuza, Kruger National Park, South Africa

Contact: Tiaan Pool

Tel 044 801 5024

Email: tiaan.pool@nmmu.ac.za

25 – 27 October 2016

SKYDD - Security, fire and rescue 2016

Northern Europe's largest trade fair for the security industry

Venue: Stockholm, Sweden

For more information visit:

www.stockholmssmassan.se/?sc_lang=en

November

3 – 4 November 2016

ICDEM 2016: 18th International Conference on Disaster and Emergency Medicine

The ICDEM 2016: 18th International Conference on Disaster and Emergency Medicine aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Disaster and Emergency Medicine. It also provides the premier interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends and concerns, practical challenges encountered and the solutions adopted in the field of Disaster and Emergency Medicine

Venue: Cape Town Lodge Hotel,

101 Buitengracht Street

For more information visit:

waset.org/conference/2016/11/cape-town/ICDEM

3 – 6 November 2016

ITRS - International Technical Rescue Symposium 2016

The yearly symposium is the leading forum for up to date, state-of-the-art, technical rescue information. Rescuers representing mountain, cave, fire, industrial and swiftwater gather to discuss ways to improve safety and performance and answer questions

Venue: Albuquerque

Contact: info@itronline.org

3 – 4 November 2016

International Fire and Explosion Hazard Management Conference Malta

The international organisation for industrial emergency response and fire hazard management

Venue: Corinthia Hotel St George's Bay, St George's Bay, St Julians STJ 3301, Malta

Contact: Event Director – Paul Budgen

Tel: +44 (0) 203 286 2289

Email: pbudgen@edicogroup.net

8 – 10 November 2016

Sfitex / Securika

Exhibitors are manufacturers, developers, suppliers and distributors of protection equipment and security products, who are interested in dynamic development of the business

Venue: ExpoForum Convention and Exhibition Centre, St Petersburg, Russia

For more information visit:

www.securika-spb.ru/en-GB/

22 – 25 November 2016

6th Session of Africa Regional Platform and 5th High-Level Meeting on Disaster Risk Reduction

Representatives of African countries, stakeholder groups and development and humanitarian partners will gather for the 6th Session of the Africa Regional Platform and the 5th High Level Meeting on Disaster Risk Reduction. The Platform and High Level Meeting will be hosted by the Government of Mauritius, in cooperation with the African

Union Commission, the SADC Secretariat and the UN Office for Disaster Risk Reduction (UNISDR)

Venue: Mauritius

For more information visit:

www.unisdr.org/conferences/2016/afpr

December

7 – 8 December 2016

VdS-FireSafety Cologne 2016

Technical conferences are one or two day events, which serve to provide practical information and a transfer of know-how as well as an exchange of opinions. In the Exhibitor Forum, exhibitors present in detail technical innovations, important trends in the industry and their services. At the Science Forum Fire Protection, universities, technical colleges and research centres will present their latest topics in the form of a short presentation in the exhibition space

Venue: Germany

Contact: Regina Krenn

Tel. +49 (0) 221 77 66 481

[fachtagung\(at\)vds.de](mailto:fachtagung(at)vds.de)

8 – 10 December 2016

IFSEC India

The event is the centre for 15 000 industry buyers and decision makers attending to review the latest products and innovations, build business partnerships and to conduct business and make purchases

Venue: Pragati Maidan, New Delhi, India

For more information visit:

www.ubmindia.in/ifsec_india/home

11 – 13 December 2016

MEFSEC - The Middle East Fire, Security and Safety Exhibition and Conference

Running into its 17th edition this year, MEFSEC is the only Fire and Security event in Egypt, providing a platform for industry professionals to source new technologies, equipment and services from local and international manufacturers, suppliers and regional distributors

Venue: Cairo International Convention Centre, Egypt

Contact: Hesham Fouad

Tel: 20 2 2735 5837/3877

hfouad@egytec.com

2017

January

30 January – 2 February 2017

MEFSEC - The Middle East Fire, Security and Safety Exhibition and Conference

Arab Health is the largest gathering of healthcare and trade professionals in the MENA region. The Arab Health Congress 2017 featured 14 conferences offering CME points to attending medical professionals. Together with leading healthcare providers and medical device companies, Arab Health has developed a number of unique programmes that span across different modalities, giving healthcare practitioners first-hand experience with the latest technological advancements

Venue: Dubai International Convention and Exhibition Centre

For more information visit:

www.arabhealthonline.com

The fire fighter within

Never give up
Never give in
Fight 'til you lose.....
Or fight 'til you win.

Never let up.
Never let down.
Never let the frightened.....
See you frown.

Wield your weapons
Conquer all fears
Work 'til your sweat....
Replaces their tears.

Learn from your losses
Savour your wins.
Prepare for the next one
And battle again.

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