



Fire Prevention Legislative Overview

Mr Jens Jacobson

What we are discussing in this session

- ▶ The legal framework for fire protection in South Africa
- ▶ How fire statistics can inform the development of the fire protection legal framework and the codes

Total Cost of Fire -The Four Big Numbers

- ▶ Cost of providing a fire brigade service
- ▶ Cost of providing for fire protection systems
- ▶ Direct (uninsured) Fire Losses
- ▶ Insurance premiums

COMPARISON – Million Rands

Parameter	Legalburg	Opsville	Happy Town
Provision of Fire Brigade Services	R10	R100	R35
Insurance Premiums	R45	R25	R30
Fixed Fire Systems	R60	R10	R25
Fire Loses	R30	R20	R35
TOTAL COST FIRE	R145	R155	R125

HOW DO WE GET TO HAPPY TOWN?

- ▶ The legal framework must enable stakeholders to achieve a benchmark of life and property fire safety that is acceptable to society
- ▶ Provision of a knowledge base so that informed decisions can be made on the allocation of financial resources and the development of legislation to minimise the total cost of fire

Roman Law

- ▶ Communities created a fire and health risk
- ▶ Orderly settlement planning was therefore a requirement
- ▶ Specific rights and obligations assigned to neighbouring properties



Building regulation

- ▶ A regulating instrument, that
- ▶ Describes a minimum standard, that
- ▶ Should be implemented during the building process

- ▶ Example: Adequate means to detect a fire shall be provided

Building Standard

- ▶ An official technical point of reference, that
 - ▶ Standardises building and construction activity
 - ▶ Thus providing measurement criteria
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- ▶ E.g. SANS 10139, “Fire detection and alarm systems for buildings”

Approaches to the formulation of building standards

- ▶ The performance based approach – rational design
- ▶ The prescriptive based approach – deemed-to-satisfy
- ▶ E.g. Ventilation in single storey buildings: 3% or do a computer simulation using a design fire

Rational design vs deemed to satisfy



Origin of South Africa's Building Regulations

- ▶after mature deliberation, and in the interests of the Honourable Company and for the security of the said buildings and the goods stored in them, it has been considered essential, and has also been decided that the thatch should be removed from the roofs of all the Company's buildings and replaced by baked tiles”
- ▶ Wednesday 7 January 1660

Houses in De Kaap

- ▶ Rectangular wattle-and-daub walls;
- ▶ Thatch roofs required a “brandzolder” (fire ceiling)
- ▶ Thatch was later prohibited
- ▶ Tax of 2 shillings per month was levied on each chimney

Development of building regulations

- ▶ In the 19th Century the law makers tried to ensure proper sanitation and minimise conflagrations
- ▶ In the 20th Century the law makers developed minimum standards for the construction and maintenance of buildings, designed to protect public health, safety and general welfare

Standard Building Regulations

- ▶ Department of Civil Engineering and Packaging Services of the SABS in 1970
- ▶ Metric version in 1972
- ▶ Voluntary adoption – most local authorities continued to use own building by laws

Anti Inflation Measures

- ▶ Minister of Economic Affairs – Anti-inflation Committee to reduce medium and long term inflation
- ▶ A recommendation was the development of a national set of building regulations
- ▶ National Building Regulations and Building Standards Act 103 was passed on 22 June 1977
- ▶ National Building Regulations were implemented on 1 March 1985
- ▶

National Building Regulations and Building Standard Act, Act 103 of 977

“To provide for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities; for the prescribing of building standards; and for matters connected therewith.”

Key Provisions Relating to Regulation of Fire Safety: Act 103

- ▶ Section 5 deals with the appointment of a Building Control Officer,
- ▶ Section 6 requires that the recommendations of the chief fire officer be taken into account when a fire protection plan is required
- ▶ Section 9 provides for the mechanism of appeal against a decision taken by a municipality via the Review Board

Organisation of the National Building Regulations

- ▶ Divided into Parts
 - ▶ Part A – Administrative
 - ▶ Part T – Fire Protection
 - ▶ Part W – Fire Systems
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- ▶ A functional requirement – adequate means to extinguish a fire
 - ▶ SANS 10400 Deemed to satisfy – One fire hose reel for every 500 square meters of floor area

Transfer of Function from SANS to NRCS

- ▶ SABS established as statutory body in 1945 and is the national standards organisation under the Standards Act
- ▶ Conflict of interest in the amending of codes and the function of the Review Board
- ▶ Distinction between the writers of the Regulations and the writers of the Code
- ▶ National Regulator for Compulsory Specifications Act, Act 5 of 2008, under Ministry of Trade and Industry

Municipal By Laws

Municipality may issue by-laws in terms of the Local Government Municipal Systems Act 32, 2000.

Provides a regulatory requirements for amongst other the use, storage and handling of flammable substances.

Deals with important aspects not covered by national legislation (tents) and can be focussed on issues specific to a municipality

Not all municipalities have promulgated fire by-laws

Impact of Constitutional Change

- ▶ All areas of SA fall under a municipality
- ▶ Some rural structures were erected with minimal regulatory control – no building regulations or by-laws
- ▶ Challenge when changes are made

Challenges Posed by Rural Structures



SA Bureau of Standards

- ▶ National institution for the promotion and maintenance of standardisation and quality in connection with commodities and services
- ▶ Currently more than 6500 national standards
- ▶ SABS Commercial (Pty) Ltd provides certification, testing and consignment inspection
- ▶ Fire Engineering Laboratory at Pretoria Groenkloof campus

WHAT KEY DRIVER IS MISSING IN SOUTH AFRICA?

- ▶ Compulsory collection of fire related data and compilation of statistics
- ▶ The FPA has provided an invaluable service to SA over the decades in providing fire statistics

INTERNATIONAL EXAMPLE

- ▶ NFPA 901 - Standard Classification for Incident Reporting and Fire protection Data – Data Dictionary
- ▶ NFIRS – National Fire Incident Reporting System - FEMA program that collects fire data in the US
- ▶ AFIRS – Australian systems based on NFPA 901

NFPA 901 – 2011 Standard Classification for Incident Reporting and Fire Protection Data

- ▶ General Property Use Coding
 - ▶ Code 2: Educational Use
 - ▶ Code 21: Primary and secondary level education
 - ▶ Code 22: Post secondary level education
 - ▶ Code 211: Nursery school
 - ▶ Code 212: Kindergarten
 - ▶ Code 213: Elementary school

REASONS FOR DATA ANALYSIS BY FIRE DEPARTMENT - FEMA

- ▶ Gain insights into fire problems
- ▶ Improve resource allocation for combating fires
- ▶ Identify training needs

- ▶ **Data collection and analysis provides basis for development of regulations, by-laws and standards to achieve cost effective fire protection in society**

INFIRS 5.0 Data Structure

MODULE	DESCRIPTION
Basic Module	General information for each incident
Fire Module	Fire incident information
Structure Fire Module	Information on structure fires
Civilian casualty Fire Module	Fire related injuries or deaths to civilians
Fire Service Casualty Module	Injuries or deaths to fire-fighters
EMS Module	Medical incidents
Hazardous materials Module	Hazardous materials incidents
Wildland Fire Module	Wildland or vegetation fires
Apparatus/Resources Module	Apparatus specific incidents
Personnel Module	Personnel associated with apparatus
Arson Module	Intentionally-set fire information

EFFICIENCY AND VALUE FOR MONEY

- ▶ Data collection and statistical analysis can enable individual fire brigade services of similar size and risk to benchmark performance
- ▶ Fire prevention programs can be targeted at fire safety problems that are specific to a community
- ▶ Trends in system failure can be identified

How data analysis can inform legislation or standards

- ▶ Flue pipe fires – 4 in one season



National trend analysis

Fire in nursery buildings – Buffelsjag – floating neutral



RECOMMENDATIONS

- ▶ All fires in SA to be identified by unique number
- ▶ Insurance claims and origin and cause investigation linked to this number
- ▶ Implement a national fire data base using a modified version of NFPA 901 as the data dictionary
- ▶ The national fire data base to be the responsibility of a national department, including input from Stats SA, possibly contracted out to a third party such as FPA, CSIR
- ▶ Annual fire statistics report to be published
- ▶ Database to be available for research and data analysis to interested parties
- ▶ National government to submit fire statistics to World Fire Data Base
- ▶ Fire statistics to inform the development of future legislation and standards