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ROUTINE SERVICING OF FIRE PROTECTION SYSTEMS AND EQUIPMENT

AS1851-2012

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NEW DIRECTIONS INTERNATIONAL BUSINESS SERVICES PTY LIMITED ABN 49 083 183 751

Representing Engineers Australia's Society of Building Services Engineers on Standards Australia's Technical Committee ME/62 having input to the development of this Standard.

Program

- When
- Why
- Comparison to 2005 version
- Section 1 (the bit that relates to FM's)
- Responsibility & defects
- Service frequency & recordkeeping
- Break

The standard has been revised and this standard AS1851-2012 it is currently with the publisher and shall make AS1851-2005, obsolete.

It has a new title:
"Routine servicing of fire protection systems and equipment"

- Routine servicing entails the inspection, testing, preventative maintenance and survey.

To highlight IT&S* activities and avoid confusion with the previous term 'maintenance' from the previous standard title "maintenance of essential services in buildings"

**IT&S = Inspection Test & Service*

Approved Design:

- The design approved by the planning authority at time of installation or by subsequent modification

This includes: The Building Code of Australia (version at time of approval), any approved alternate solutions to any part of the BCA, Ordinance 70, HOBAC as well as the relevant standards and at the time of approval.

- *This standard has been written specifically to reflect the legislators requests and should be appropriate to be called up in legislation. At present AS1851 is a non-mandatory guide (except in QLD) – as there were issues with the 2005 version. These have been overcome.*

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AS 1851-2012 has essentially the same routines as AS 1851-2005. However Section 1 is all about the base building and how systems cannot be expected to be serviced when the performance delivered is not clearly defined at site.

SECTION	AS1851-2012	AS1851-2005
1	SCOPE AND GENERAL	SCOPE AND GENERAL
2	AUTOMATIC FIRE SPRINKLER SYSTEMS	AUTOMATIC FIRE SPRINKLER SYSTEMS
3	FIRE PUMPSETS	FIRE PUMPSETS
4	FIRE HYDRANT SYSTEMS	FIRE HYDRANT SYSTEMS
5	WATER STORAGE TANKS FOR FIRE PROTECTION SYSTEMS	DELIVERY LAY FLAT FIRE HOSE
6	FIRE DETECTION AND ALARM SYSTEMS (incl OWS/EWIS/FIP)	FIRE DETECTION SYSTEMS
7	SPECIAL HAZARD SYSTEMS	SMOKE ALARMS AND HEAT ALARMS
8	DELIVERY LAY FLAT FIRE HOSE	FIRE ALARM MONITORING SYSTEMS
9	FIRE HOSE REELS	SOUND SYSTEMS FOR EMERGENCY PURPOSES
10	PORTABLE AND WHEELED FIRE EXTINGUISHERS	INTERCOM SYSTEMS FOR EMERGENCY PURPOSES
11	FIRE BLANKETS	GASEOUS FIRE EXTINGUISHING SYSTEMS
12	PASSIVE FIRE AND SMOKE SYSTEMS	FIXED AEROSOL FIRE EXTINGUISHING SYSTEMS
13	FIRE AND SMOKE CONTROL FEATURES OF MECHANICAL SERVICES	OPEN NOZZLE WATER MIST FIRE EXTINGUISHING SYSTEMS
14	EMERGENCY PLANNING IN FACILITIES	FIRE HOSE REELS
15		PORTABLE AND WHEELED FIRE EXTINGUISHERS
16		FIRE BLANKETS
17		PASSIVE FIRE AND SMOKE CONTAINMENT SYSTEMS
18		FIRE AND SMOKE CONTROL FEATURES OF HVAC SYSTEMS
19		EMERGENCY EVACUATION PROCEDURES
App A	A REFERENCED DOCUMENTS	REFERENCED DOCUMENTS
App B	ROUTINE SERVICE PROCESS	COMPETENCIES AND AUTHORITY TO WORK
App C	BASELINE DATA	MAINTENANCE TAGS OR LABELS—FREQUENCY
App D	SYSTEMS INTERFACE TESTING	SAMPLE ANNUAL SYSTEM CONDITION REPORT
App E	YEARLY CONDITION REPORT	FIRE PROTECTION SYSTEMS AND EQUIPMENT AND APPLICABLE MAINTENANCE PROVISIONS
App F	FIRE PUMPSET TROUBLESHOOTING CHARTS	FIRE PUMPSET TROUBLESHOOTING CHARTS
App G	BATTERY CAPACITY TESTING	OTHER EMERGENCY EVACUATION PROCEDURES
App H	FIRE DETECTOR TESTING	
App I	MECHANICAL SERVICES—DOCUMENTATION AND SKILLS	
App J	MECHANICAL SERVICES—GUIDANCE	
App K	OTHER EMERGENCY RESPONSE IN FACILITIES	

Section 1

Baseline data:

- Data derived from approved design for comparison to data from inspect, test & survey.
- Retrospective baseline data is listed in beginning of each section, e.g. sprinkler Cl 2.2.3.
- Block plan, system interface diagram, pressure gauge schedule & water supply valve list.

• *Note that ventilation isometrics were required from AS1668-1975 but were rarely installed – building owners are now needing to install them (and should do so to NSW Fire & Emergency Tactical Plan Spec).*

- Baseline data not available at time of assessment is to be recorded as a non-conformance and when conducting the next assessment must be recorded as non-compliant.

- New informative Appendix C provides an extensive summary of baseline data required for sprinklers, hydrants, fire alarms, special hazards and the multiple equipment register.

TABLE C6 TYPICAL EQUIPMENT REGISTER
FOR EQUIPMENT SERVICED IN ACCORDANCE WITH AS 1851—2012

Equipment Identification No	Type	Area/ Location	Description	Type/Size or Capacity	Manufacturer/ Supplier (optional)
Passive Example 1					
001	Fire Door	L1 Stair	Sliding door	2 h motorised	
007	Pillows	L2 Stair 1 riser	Copper Pipe penetration in services riser	1 h fire rated	
0013	Fire collar	Apartment 4 car park	Plastic Pipe floor penetration	2 h fire rated	
Example 2					
001	Fire extinguisher	L1 passage way	Water	9L	
002	Fire extinguisher	L2 Stair 4	Powder	2.33 kg (2A 40B)	
003	Fire Blanket	Kitchen		1 m × 1.2 m	
Example 3					
001	Fire Hose Reel	L1 Stair 2		36 m length	

NOTE: Details shown in the above example are to be inserted as applicable to the equipment type serviced.

Responsible entity defined:

- Typically the building owner, agent or building occupier

Test simulation:

- Rendering equipment into a state without carrying out the action that causes that state.

System Interface:

- A connection of one or more fire systems to a building fire safety feature.

Where fitted:

- Components not fitted under the approved design, need not be retrofitted or defected.

Defects now extended:

- From Critical and Non-critical to include non-conformance.

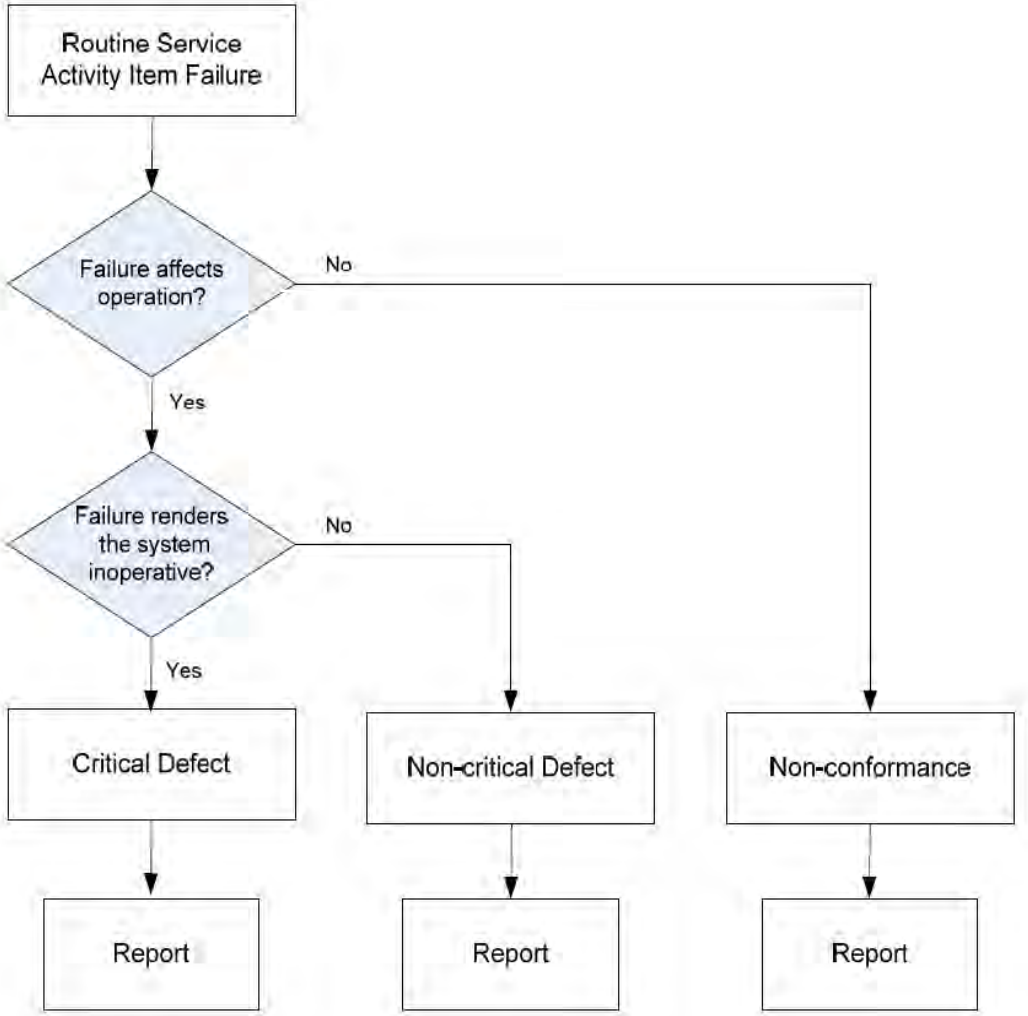
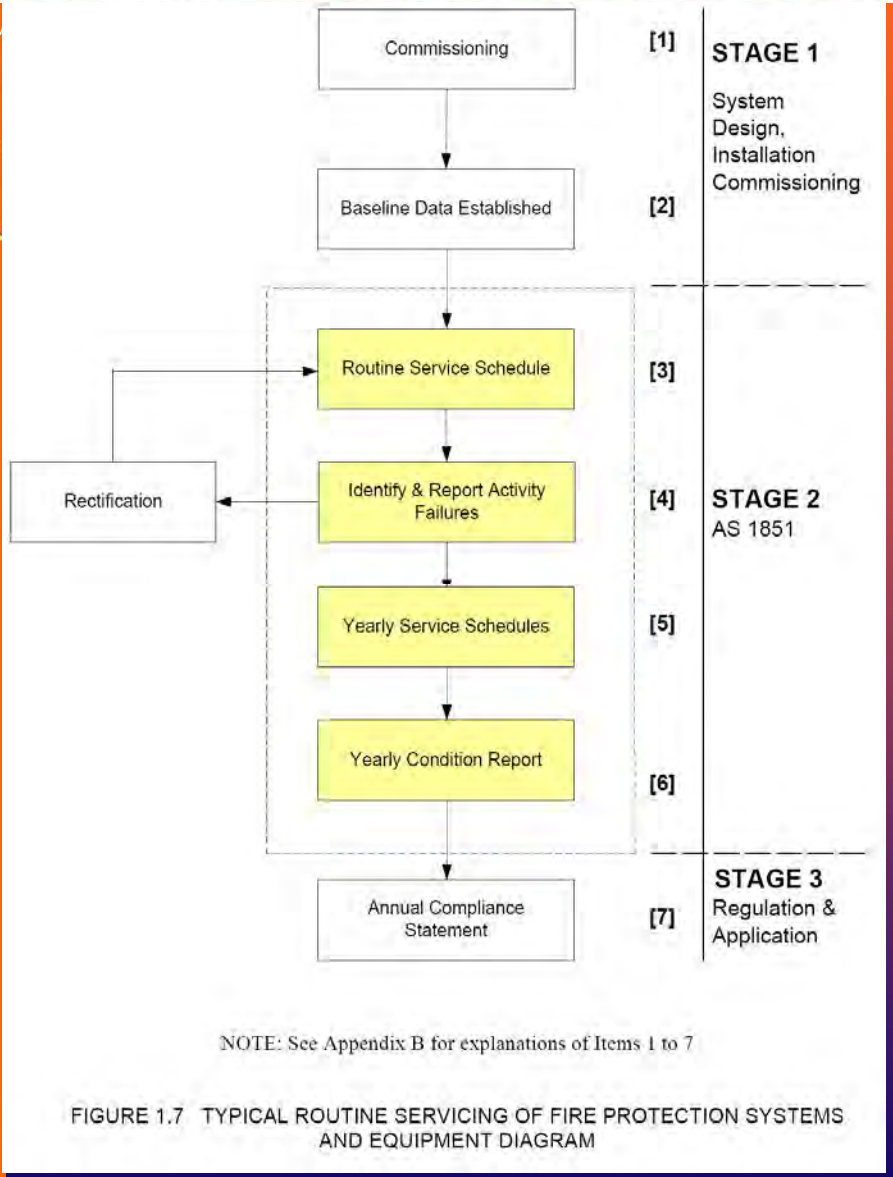


FIGURE 1.5.13 ROUTINE SERVICE ACTIVITY ITEM FAILURE



NOTE: See Appendix B for explanations of Items 1 to 7

FIGURE 1.7 TYPICAL ROUTINE SERVICING OF FIRE PROTECTION SYSTEMS AND EQUIPMENT DIAGRAM

Scope of standard now defined:

- Providing commissioning baseline data not part of AS1851, just non-conformance / non-compliance – baseline data is well referenced in installation standards.

- Rectification of defects and need for minor work removed, now just recorded as defect. *Note that non-remedied systems shall be effectively deemed non-performing re AS4655 assessment.*
- Current system design standards deleted to remove implied requirement to defect system.
- Clarified AS1851 is written to be suitable for use on all systems of all vintages.
- The design approved by the ‘planning authority’ at time of installation or subsequent modification.
- AS1851 Survey is not intended for annual regulatory compliance statement. This is covered by:

  AS 4655: Auditing of fire safety systems in buildings.

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Service schedules simplified, re-formatted to frequency based tables:

- Frequencies are Monthly, Six Monthly, Yearly etc. with sequential work flow for inspect, test, preventative maintenance & survey activities.
- Inspect & Test activity items have been merged but survey remains separate.
  - Revised log book format or electronic recording will be required – to allow for “at site audit” (i.e. AS 4655 Audit & Assessment).

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Monthly testing is now the minimum, weekly testing voluntary

- Pre-conditions for omission of weekly testing of sprinkler systems and pumps removed.

Scheduled date:

- Defined as the date if the initial activity
- Tolerances apply to the scheduled date
- Scheduled date may be bought forward by agreement subject to the required number of activities being completed in the prescribed period and on-going tolerances & frequency apply to new scheduled date.

	AS 1851 Section	Monthly	Three-monthly	Six-monthly	Yearly	Five-yearly	Ten-yearly	Twenty-five-yearly
2	Fire sprinklers	✓		✓	✓	✓	✓	✓
3	Fire pumpsets	✓		✓	✓	✓	✓	
4	Fire hydrant systems				✓	✓		
	Fire hydrant Valves			✓	✓			
5	Water storage tanks	✓		✓	✓		✓	
6	Fire detection systems	✓		✓	✓	✓		
7	Special hazards	✓		✓	✓		✓	
8	Delivery lay flat fire hose			✓	✓	✓		
9	Fire hose reels			✓	✓	✓		
10	Portable and wheeled fire extinguishers			✓	✓	✓		
11	Fire blankets			✓	✓	✓		
12	Passive fire systems		✓	✓	✓			
13	Mechanical services	✓	✓	✓	✓	✓		
14	Emergency response facilities		✓	✓	✓			

FIGURE 1.12 ROUTINE SERVICE FREQUENCIES FOR EACH SECTION

TABLE 1.12

FREQUENCY TOLERANCES –

Frequency	Tolerance (±)
Monthly	5 working days
Three-monthly	1 month
Six-monthly	1 month
Yearly	2 months
Five-yearly	3 months
Ten-yearly	6 months
Twenty five-yearly	6 months

Yearly interface test clarified as 'end to end':

- Only one cause (trigger) initiating the listed effects (functions).
- New informative Appendix D asks for test plan & record detailing interface test procedure.

New definition – "Adverse operating conditions":

- Includes: aggressive environments, high equipment usage and high defect rates.
- More rigorous program in scope and/or frequency **shall be** developed.
- Determined by owner in consultation with service provider as part of risk management plan

Records:

- Log books- electronic or hardcopy, hardcopy **left on-site** at completion of test.
- Tags/Labels revised & extended to fire doors with defined fields in 'summary record'
- Summary Record provided to 'responsible entity' with-in one week of date of service

TABLE 1.16

ROUTINE SERVICE RECORDS

Section No.	Systems or equipment	Service Records			
		Logbooks	Tags	Labels	Summary Records
2	Fire sprinklers	✓	—	—	—
3	Fire pumpsets	✓	—	—	—
4	Fire hydrant systems	✓	—	—	—
4	Fire hydrant valves	—	✓	✓	✓
5	Water storage tanks	✓	—	—	—
6	Fire detection and alarm systems	✓	—	—	—
7	Special hazards	✓	—	—	—
8	Delivery lay flat fire hose	—	✓	✓	✓
9	Fire hose reels	—	✓	✓	✓
10	Portable and wheeled fire extinguishers	—	✓	✓	✓
11	Fire blankets	—	✓	✓	✓
12	Passive fire systems	✓	—	✓	✓
13	Smoke and Heat control features of Mechanical services	✓	—	—	—
14	Emergency response facilities	✓	—	—	—

1.16.3 Logbooks

Service records in the form of logbooks shall contain the following information:

(a) Name and address of the building or site.

(b) Date and frequency of service performed.

(c) System or equipment identification and location.

(d) Each activity performed, including recorded results if required, and ‘pass’ or ‘fail’ as appropriate.

(e) Details of each non conformance or defect including its classification, location and rectification completed.

(f) Name of the responsible entity (owner/occupier)

(g) Name and signature of the service person and date.

(h) Name of the service provider or company.

1.16.5 Summary record

Where tags or labels are used, a supporting Summary Record shall be completed and shall include a register of the equipment on the premises, a statement of the service performed and details of defective items as follows :

(a) Name and address of the building or site.

(b) Date of service.

(c) Details of equipment on site listed in the Equipment Register (see Appendix C).

(d) Scheduled date of service, see Clause 1.11.

(e) Quantity and type of equipment serviced and frequency of service performed.

(f) Quantity and location of equipment not serviced.

(g) Details of each non conformance or defect including its classification, location and any rectification completed.

(h) Name of responsible entity (owner/occupier).

(i) Name and signature of the service person and date.

(j) Name of the service provider or company.

(k) For fire extinguishers, the date of manufacture or the date of the last pressure test.

(l) For fire hose reels, details of the flow test results for the most hydraulically disadvantaged hose reel.

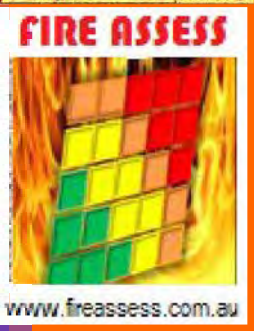
(m) Any other applicable comment.

Defect reporting:

- Critical Defect confirmed in writing to responsible entity with-in 24hrs
- With recommendation of rectification with a minimum of delay
- Non-critical defects recommended to be rectified ASAP
- Non-conformances rectification recommended prior to next yearly condition report

Yearly condition report:

- Appendix sample report is now informative, no longer normative.
- Report scope is now listed in same way as records.
- Controversial ‘statement of condition’ no longer a guarantee of compliance.
- Statement of critical & non-critical defects, non-conformances and missed tests.
- Also noted to support regulatory requirement for annual fire safety statement
  - *However “Survey” is not intended to be annual fire safety statement*.



Appendices:

Appendix A – normative – Referenced Documents but excludes obsolete standards.

Appendix B – informative – Routine Service Process.

Appendix C – informative – Baseline data.

Appendix D – informative – Systems Interface Testing.

Appendix E – informative – Yearly Condition Report.

Appendix F – informative – Fire pump troubleshooting.

Appendix G – normative – Battery Capacity Testing.

Appendix H – normative – Fire Detector Testing.

Appendix I – informative – Mech Services Documentation & Skills.

Appendix J – informative – Mechanical Services Guide.

Appendix K – informative – Emergency Evacuation.

Emerging issues?

What other issues will effect and impact the facilities which you manage?

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