



28<sup>th</sup> April 2005

Version Final 1.1

**CODE OF PRACTICE**  
**FOR THE**  
**AUTOMATIC FIRE ALARM SYSTEM**

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## 1 Document History

Version	Date	Description
1.0	22 <sup>nd</sup> March 2005	Final
1.1	28 <sup>th</sup> April 2005	Final

## 2 Copyright

The copyright of this document is the property of the New Zealand Fire Service.

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## 3 Purpose of this Document

The purposes of this Code of Practice is to:

- 1) Identify objectives of the New Zealand Fire Service in monitoring Fire Alarms; and
- 2) Set performance standards.

The requirements of this Code are mandatory and compliance is a condition for supplying services related to the Automatic Fire Alarm System to the New Zealand Fire Service.

## 4 Objectives

The New Zealand Fire Services wants to:

- 1) Obtain intelligence from Fire Alarms.
- 2) Receive message related to Fire Alarm events via the Service Provider Interface of the Signal Transport System Message Handling System (STSMHS). These messages must conform to the 'Automatic Fire Alarm Service Provider Computer Interface Specification'.
- 3) Encourage Fire Alarm owners to connect their Fire Alarms directly to NZFS.
- 4) Limit NZ Fire Service response to fire calls only.

The Automatic Fire Alarm System must:

- 1) Provide a direct connection (forwarded in electronic form, without human intervention) between the Fire Alarm and the STSMHS.
- 2) Transmit Fire Alarm signals from buildings to the NZ Fire Service's Communications Centres.
- 3) Provide for all connected Fire Alarms to be monitored and service agents notified of defects.
- 4) Promote reduced incidence of false alarms from connected systems.
- 5) Provide opportunities for the Fire Service to gain more information from intelligent Fire Alarm systems than just 'fire', 'defect', 'isolate', and 'normal' messages (where the fire alarms have the capacity to provide that additional information).

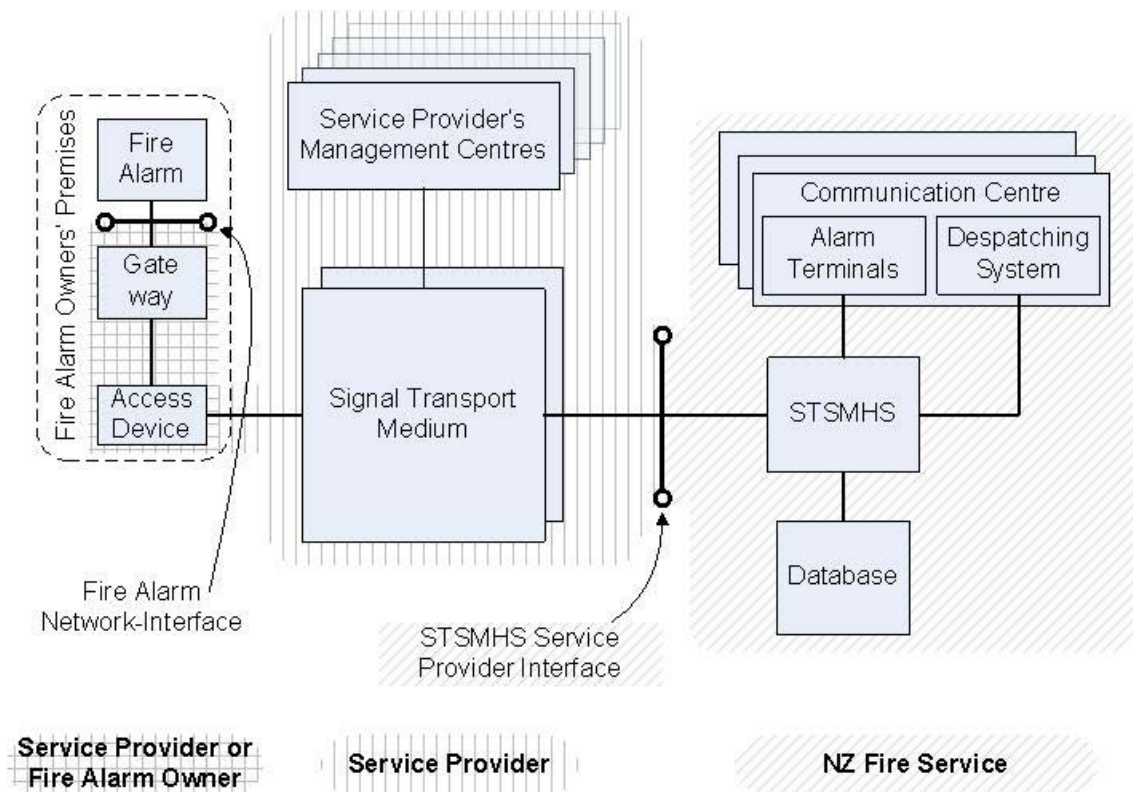


Figure 1: Automatic Fire Alarm System

**Brief Description of the Message Flow**

A Fire Alarm sends messages indicating events. These messages will be received either by the Service provider, NZFS or both. Messages can also be forwarded to other parties (like service agents); this is not indicated in Figure 1.

The signal path between the Fire Alarm and the STSMHS, and also between the STSMHS and the NZFS's Dispatching System, is an electronic path that does not require human intervention.

Messages to NZFS will go via the Service Provider Interface of the STSMHS. These messages must conform to the 'Automatic Fire Alarm Service provider Computer Interface Specification'; the interface must conform to the 'STSMHS – AFASP Application Programming Interface Design Specification'. For details please refer to the following web page:

[http://www.fire.org.nz/building/automatic\\_firealarm\\_downloads.htm](http://www.fire.org.nz/building/automatic_firealarm_downloads.htm).

NZFS will not specify the details of the transmission path of the messages between the Fire Alarm and the Service Provider Interface of the STSMHS.

The STSMHS will forward messages indicating non-normal events, which are not fire-events, to the NZFS's database. Examples for these events include defect or isolate messages. The NZFS's database will also include information about false alarms, data entered by NZFS staff and outside parties.

The STSMHS will forward messages indicating fire-events to the relevant NZFS's Communications Centre and the NZFS's database. The Communications Centre staff will initiate a response to the messages indicating fire-events. Data related to the Fire Alarm (past non-normal events, false alarms, other Fire Alarm related data) that sent a message indicating a fire-event will be forwarded via the STSMHS to the Communications Centres.

NZFS will also query the Service Provider for Fire Alarm related data, for example FA-mode and FA-status ('Site FA Mode Summary' and 'Site FA Status Summary', as specified in the Automatic Fire Alarm Service Provider Computer Interface Specification), and date/time of the last FA-mode and FA-status changes.

## **5 Functions of the NZ Fire Service (or its appointed Agent)**

### **General**

- 1) Monitor 'fire messages' and respond with the appropriate resources to these messages.
- 2) Exchange data directly or indirectly with Fire Alarms as per 'Automatic Fire Alarm Service Provider Computer Interface Specification'.
- 3) Gather and store data about Fire Alarm non-normal events (for example fire-, test, isolate-, return-to-normal-events).
- 4) Audit the Automatic Fire Alarm Service Providers (AFASPs) and the STSMHS Service Providers (STSMHSSP) from time to time, or appoint third parties to do so on its behalf.
- 5) Provide Fire Alarm Routing table data to the STSMHSSP.
- 6) Maintain and operate the NZFS's part of the Automatic Fire Alarm System. This includes the 'Automatic Fire Alarm Service Provider Computer Interface Specification', and all equipment and software between the STSMHS and the Despatching System.
- 7) Maintain and update the Automatic Fire Alarm Service Provider Computer Interface Specification.
- 8) Maintain and update the 'Certification for Automatic Fire Alarm Service Providers' document.
- 9) Invoice the AFASPs for the fees payable to NZFS.

### **Fire Alarm Owner / Fire Alarms**

- 10) Carry out all Fire Alarm connections and disconnections to the Automatic Fire Alarm System in accordance with NZFS processes (as outlined in Appendix 1).
- 11) Maintain and update the processes related to the Automatic Fire Alarm System.
- 12) For new connections, provide a Fire Alarm identification number to the AFASPs.
- 13) Automatically obtain by query data about Fire Alarm status and Fire Alarm status updates.

### **Communications**

- 14) Advise the AFASPs and the STSMHSSP of any faults concerning the NZFS's part of the Automatic Fire Alarm System.
- 15) Liaise with the AFASPs and the STSMHSSP as necessary to facilitate the efficient operation of the signal transport system and associated functions.
- 16) Provide a Contact Point to the AFASP and the STSMHSSP, available 24 hours per day 7 days per week.

**Unwanted / False Alarms**

- 17) Notify the AFASPs about unwanted / false alarm incidents originated from the AFASP's customers' Fire Alarms connected to the Automatic Fire Alarm System.
- 18) Provide an interface for the AFASPs to enter unwanted / false alarm related data (like causes) into the NZFS's database system.
- 19) Follow up unwanted / false alarm incidents (cause of these alarms, warning letters, billing of fire alarm owner, queries, disputes).



## 6 Functions of AFASPs

### **General**

- 1) The AFASP must be and remain certified. For details please refer document ‘NZFS Certification for Automatic Fire Alarm Service Providers’, which can be downloaded from the following web page:  
[http://www.fire.org.nz/building/automatic\\_firealarm\\_downloads.htm](http://www.fire.org.nz/building/automatic_firealarm_downloads.htm)
- 2) Ensure all connected Fire Alarms must have the capacity to generate test signals. The test messages received by the STSMHS must conform the Automatic Fire Alarm Service Provider Computer Interface Specification. The purpose of these messages is to enable Alarm Agents to confirm that the Fire Alarm is connected to the Automatic Fire Alarm System and that NZFS and AFASP’s receiving equipment can successfully receive its signals. The STSMHS will respond to the test messages as per Automatic Fire Alarm Service Provider Computer Interface Specification. The responses to test messages must operate a “test correct” indication at the originating Fire Alarm.
- 3) Ensure that Fire Alarms are fitted with access devices as described below.  
The Access Device could be integrated in the Fire Alarm. If the Access Device is not integrated in the Fire Alarm, then the requirements below apply:
  - Access Devices must be powered from monitored uninterruptible energy supplies having sufficient capacity to sustain operation of the equipment, communication link interfaces and any transmission devices powered by them for a minimum of 24 hours in the event of a mains failure.
  - Access Devices must incorporate an automatic testing facility whereby at intervals not exceeding forty eight (48) hours the energy supply is tested in such a manner as to detect failure of the battery in the interval between routine service tests. If this test fails a message indicating this failure must be forwarded to NZFS and the AFASP.
- 4) Event messages from Fire Alarms are to be responded to as described below:
  - In case of messages indicating Fire Alarm fire-events, make available immediately the messages to the relevant Service Agent, and follow up return of the Fire Alarm to normal.
  - In case of messages indicating Fire Alarm defects, make available as soon as practicable the messages to the relevant service agent, and follow up return of the Fire Alarm to normal. This includes advising the Service Agent two hours after the incident, and at the end of each working day until the Fire Alarm has been returned to normal.
  - In case of messages indicating a Fire Alarm is tested, follow up return of the Fire Alarm to normal. This includes advising the Service Agent 2 hours after the incident, and at the end of each working day until the Fire Alarm has been returned to normal.
  - In case of messages indicating a Fire Alarm is isolated, follow up return to normal. This includes advising the Service Agent of any Fire Alarm remaining in an ‘isolate’ condition at the end of a normal working day.

- In case of non-acknowledgement of messages by the STSMHS indicating fire-events, notify NZFS via 111-calls.
  - In case of malfunctioning Fire Alarms, isolate these Fire Alarms as soon as reasonably practicable.
  - Respond to queries or control messages from NZFS as per 'Automatic Fire Alarm Service Provider Computer Interface Specification'.
  - In case of tests, advise the Fire Alarm Service Agents of the result of the tests.
- 5) Make available alarm-event data to NZFS electronically immediately after becoming available.
  - 6) Exchange data with NZFS as per 'Automatic Fire Alarm Service Provider Computer Interface Specification'.
  - 7) Enable NZFS querying automatically of Fire Alarm 'current status' and 'time of last status change' data.
  - 8) Maintain and operate the AFASP's part of the Automatic Fire Alarm System such that the performance standards described in Appendix 2 are met. This includes the link to the Service Provider Interface of the STSMHS, and all software and equipment necessary for the AFASP to provide the service. If the Fire Alarm owner is responsible for part of the telecommunications path between the Fire Alarm and the Service Provider interface of the STSMHS, then the AFASP has to ensure that the Fire Alarm owner maintains and operates this part of the telecommunication path such that the overall Automatic Fire Alarm System meets the performance standards described in Appendix 2.
  - 9) Monitor the performance standards described in Appendix 2 of the equipment necessary to provide the service, and report monthly to NZFS.
  - 10) Prioritisation must be included so that messages indicating fire-events are transmitted preferentially before other events.

### **Fire Alarm Owner / Fire Alarm Management**

- 11) Carry out all Fire Alarm connections and disconnections to the Automatic Fire Alarm System in accordance with NZFS processes (as outlined in Appendix 1), as provided by NZFS and updated from time to time.
- 12) Verify that the installation of the Fire Alarm to be connected to the Automatic Fire Alarm System meets the relevant New Zealand Standard(s), and a Certificate of Completion has been provided by an accredited 3<sup>rd</sup> party independent inspectorate prior to the connection to the Automatic Fire Alarm System. If not required in the relevant standards, each completed Fire Alarm system must also pass the test(s) described in Appendix 4 prior to the connection to the Automatic Fire Alarm System.
- 13) Carry out all changes to data related to Fire Alarms connected to the Automatic Fire Alarm System and their owners' details in accordance with NZFS processes, as provided by NZFS and updated from time to time.
- 14) Carry out the migration of a Fire Alarm owner to a different service provider in accordance with NZFS processes, as provided by NZFS and updated from time to time.

- 15) Ensure a response is made to all failures related to equipment in the AFASP's responsibility within one hour of notification of the failure, indicating what action has been taken to resume normal service, and expected time of this resumption.

### **Unwanted Alarms / False Alarms**

- 16) Determine as soon as possible the cause of false alarm events originated from the AFASP's customers' Fire Alarms connected to the Automatic Fire Alarm System.
- 17) Forward data related to the cause of Unwanted / False Alarms to NZFS electronically as soon as it is available.

### **Reporting**

- 18) Collect, maintain and forward to NZFS in respect of each Fire Alarm monitored by the service provider and that is connected to the Automatic Fire Alarm System the data listed in Appendix 3.
- 19) Keep all records of all messages, Fire Alarm data, and Fire Alarm owner data for at least 3 months from the date of generation.
- 20) Provide a report to NZFS at the beginning of each month regarding the performance standards specified in Appendix 2.

### **Communications**

- 21) Inform as soon as reasonably practicable the Fire Alarm owner of any system failures that may affect the transmission of messages indicating fire-events to the NZFS's STSMHS, indicating what action has been taken to resume normal service, and expected time of this resumption.
- 22) Advise immediately NZFS and the STSMHS Service Provider of any faults concerning the Service Provider's part of the Automatic Fire Alarm System, indicating what action has been taken to resume normal service, and expected time of this resumption.
- 23) Liaise with NZFS and the STSMHS Service Provider as necessary to facilitate the efficient operation of the Automatic Fire Alarm System and associated functions.
- 24) Provide a Contact Point to NZFS and the STSMHS Service Provider, available 24 hours per day 7 days per week.

## **7 Functions of the STSMHS Service Provider**

- 1) Operate and maintain the Message Handling System such that the STSMHS performance standards (as in agreement between NZFS and STSMHS Service Provider) are met.

- 2) Process all Fire Alarm connections and disconnections to the Automatic Fire Alarm System in accordance with NZFS processes (as outlined in Appendix 1), as provided by NZFS and updated from time to time.
- 3) Inform immediately NZFS of any system failures that may affect the transmission of messages indicating fire-events to the NZFS's Despatching System.
- 4) Liaise with NZFS and the AFASPs as required to facilitate the efficient operation of the signal transport system and associated functions.
- 5) Provide a Contact Point to NZFS and the AFASPs, available 24 hours per day 7 days per week.

## **8 Functions of the Service Agents**

- 1) Attend to Fire Alarm premises for post alarm actuation service as soon as reasonably practicable, for example for fires or false alarms.
- 2) Ensure the tests are satisfactory and, if not, appropriate corrective action is taken.
- 3) Provide information related to false alarm event to NZFS or its agents.

## **Appendix 1: Fire Alarm Processes**

### **Connections to the Automatic Fire Alarm System**

- 1) Certified Fire Alarms only are to be connected to the Automatic Fire Alarm System. NZFS may agree in writing to allow the connection of Not-Certified Fire Alarms to the Automatic Fire Alarm System.
- 2) For connection of a Fire Alarm to the Automatic Fire Alarm System the AFASP has to:
  - Ensure the Fire Alarm is certified;
  - (If the Fire Alarm was in use before) ensure it had had a current annual survey and up-to-date monthly test records;
  - Ensure the Fire Alarm passed the tests as described in Appendix 4;
  - Ensure the device connecting the Fire Alarm to the telecommunications network:
    - Complies with AS/NZS 3548 (for radiated and conducted emissions) respectively the 'C-tick' requirement of the Ministry of Commerce; and
    - Has an energy supply compliant with NZS 4512 and NZS 3100.
  - Provide NZFS with data as per Appendix 3; and
  - Provide NZFS with the contact details of a contact person to arrange building inspection for the purpose of preparing operational plans including access in the event of fire calls.

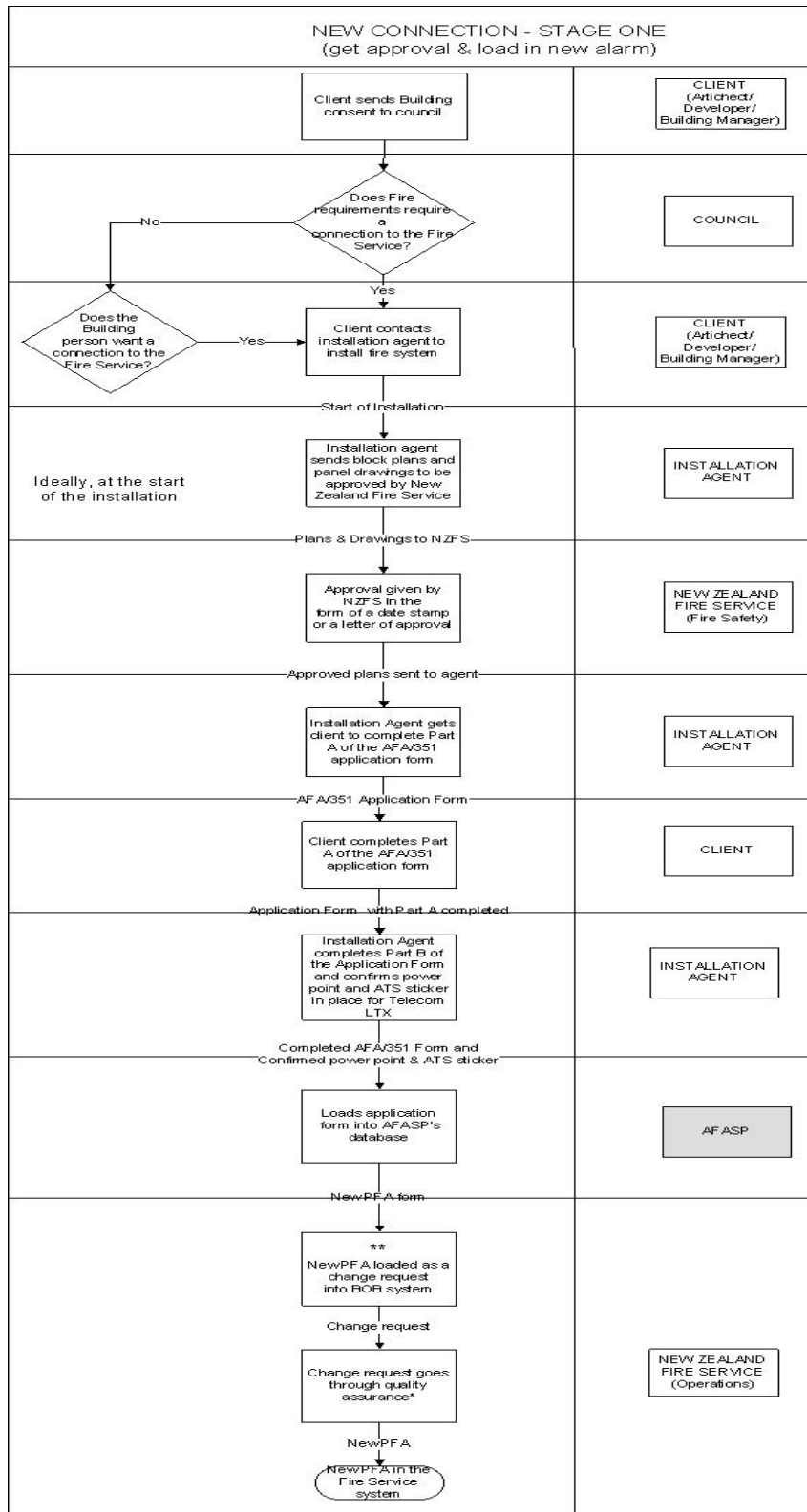
### **Disconnections from the Automatic Fire Alarm System**

- 1) The AFASP will, on instruction from NZFS, disconnect a Fire Alarm from the Automatic Fire Alarm System.
- 2) The AFASP may, with agreement from NZFS, disconnect a Fire Alarm from the Automatic Fire Alarm System for:
  - a) Non-payment of service fees;
  - b) A breach of the Certificate of Compliance;
  - c) Failure to comply with relevant NZ Standards for more than 6 months;
  - d) Failure to comply with requirements in the agreement between the AFASP and the Fire Alarm owner;
  - e) A poor false alarm record (more than 6 false alarms in a 12 month period).
- 3) Provided NZFS approval has been given to disconnect a Fire Alarm as in the section above, the AFASP is to issue the customer a 10 days final notice, in writing, of the impending disconnection.

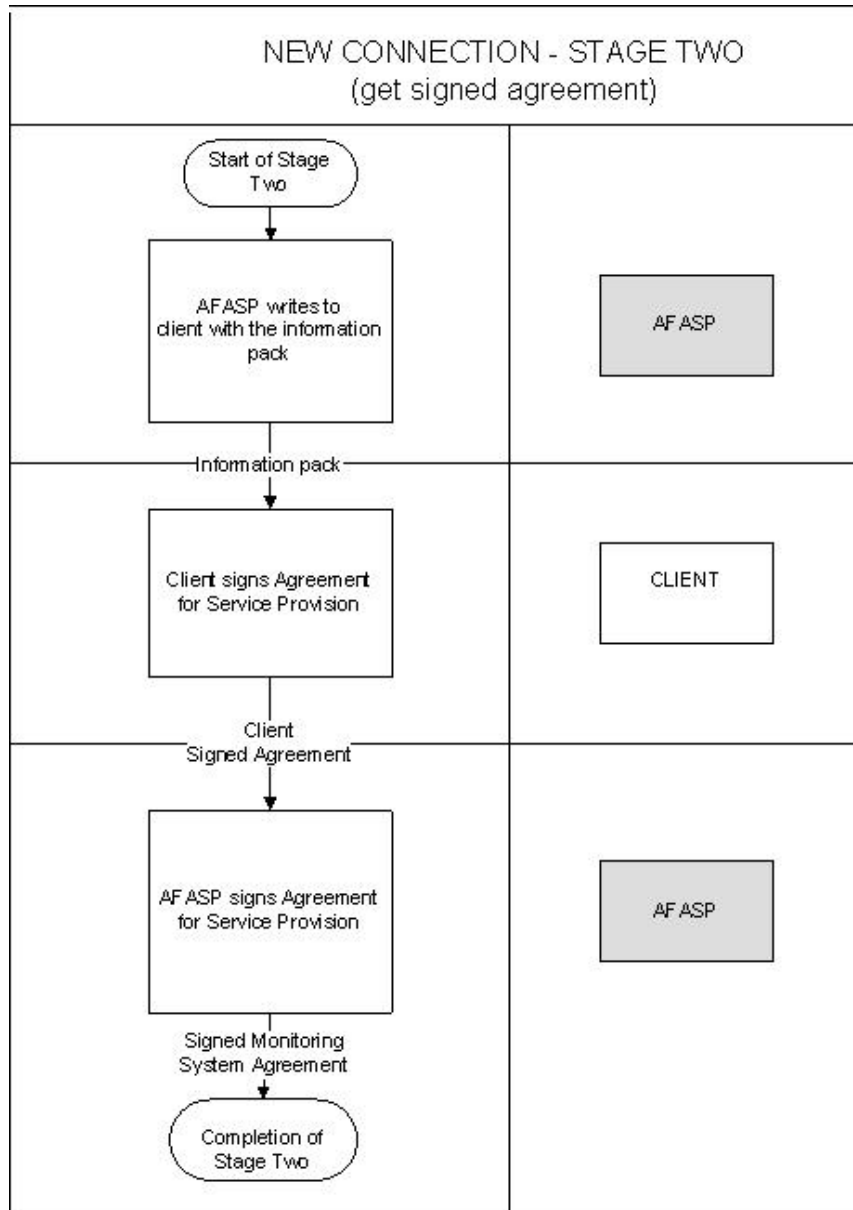
**Fire Alarm Data Processes**

Note: The processes outlined below are based on the ones currently in use. They will form the basis of the future processes.

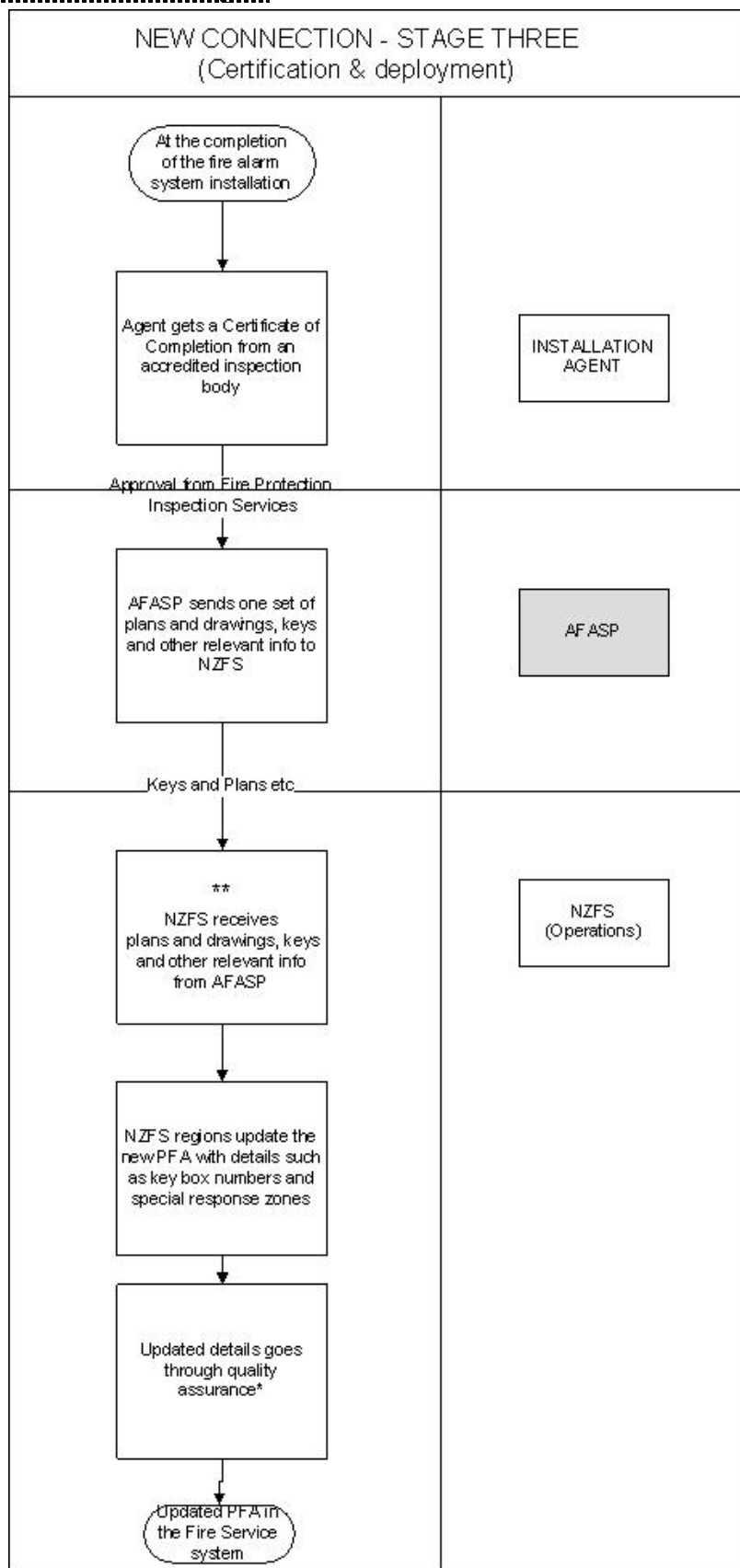
**New Connection Stage 1**



**New Connection Stage 2**

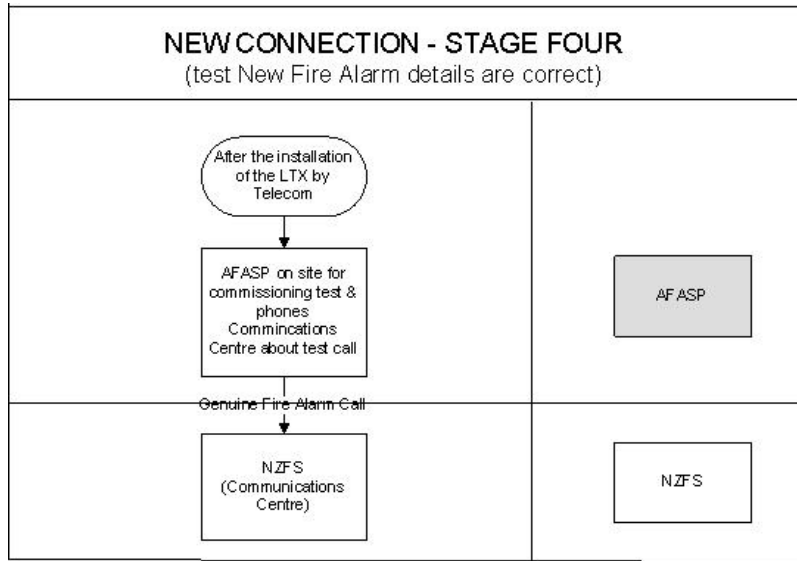


**New Connection Stage 3**

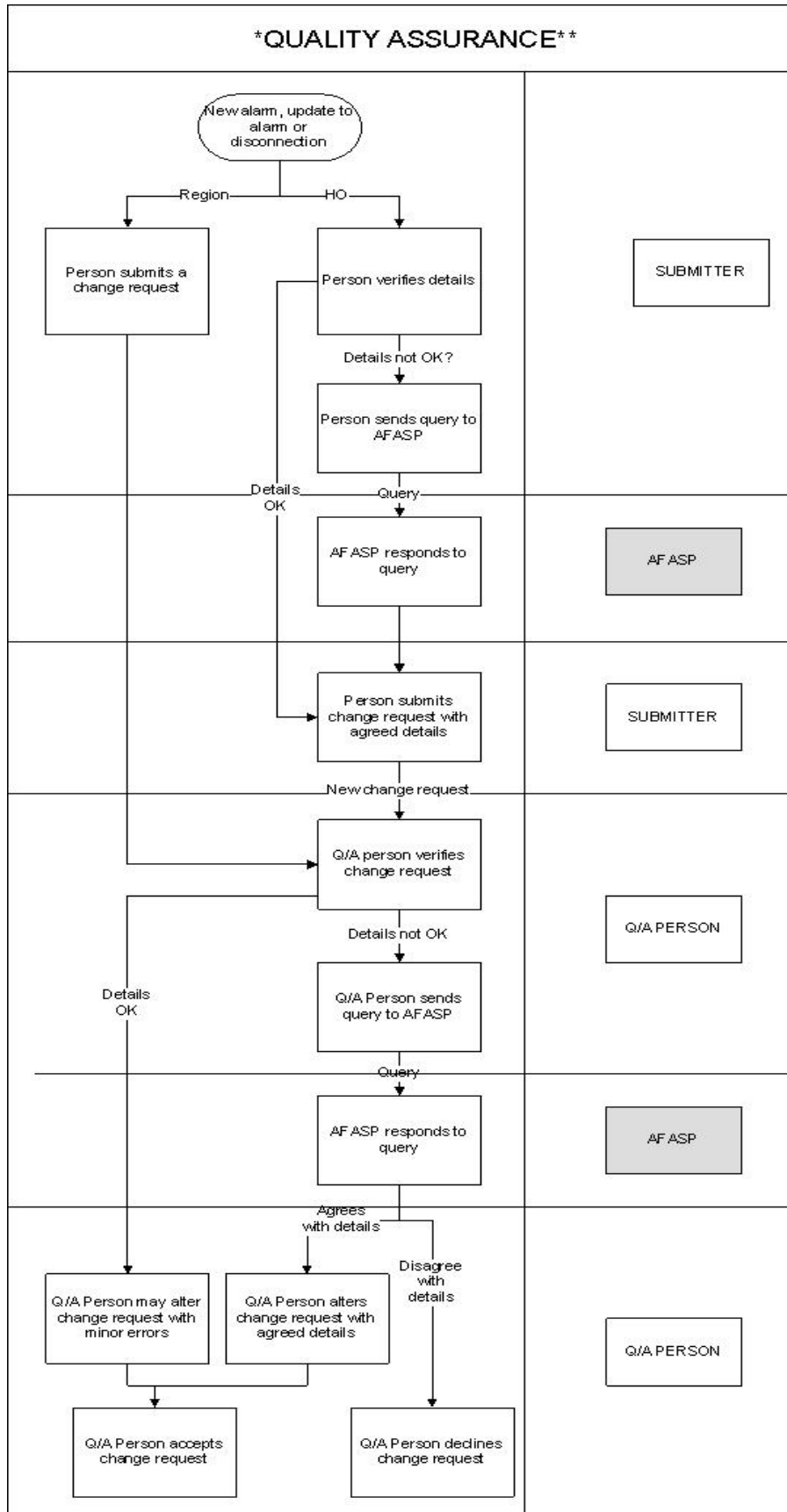




**New Connection Stage 4**



**Quality Assurance Process (Data change or Disconnection)**



## Appendix 2: Performance Standards

- 1) Failure of any section of the telecommunications path between the Fire Alarm alarm-output and the Service Provider interface of the STSMHS must not cause a message indicating a fire-event.
- 2) The direct connection line between the Fire Alarm and the Service Provider interface of the STSMHS must comply with the following standards:
  - A signal from the Fire Alarm must travel to the STSMHS is no more than 10 seconds for 97% of all messages, and no more than 15 seconds for all messages.
  - The link between the Fire Alarm alarm-output and the Service Provider Interface of the STSMHS must have a minimum Annual Availability of 99.7%.
  - No more than 1 in 1,000,000 messages received by the STSMHS from telecommunications line are allowed to be unintelligible.
  - The single failure maximum outage time for the telecommunications connection between the Access Device and the Service Provider interface of the STSMHS is 6 hours for urban Fire Alarm locations, and 12 hours for rural Fire Alarm locations.
  - The disruption of the telecommunications connection between the Access Device and the Service Provider interface of the STSMHS must be detected in less than 10 minutes, and a message indicating the status of the telecommunications connection must be forwarded immediately to NZFS.
- 3) The following exclusions are to be taken into account:
  - Force Majeure as covered in the agreement between AFASP and NZFS.
  - Faults that have been carried over to the next day with agreement of NZFS will have the corresponding delay subtracted from the outage time.
  - Where access to end-user sites is not available the corresponding delay will be subtracted from the outage time.
  - Faults that are caused by the end-user.
  - Faults that are caused by Service Agents servicing the Fire Alarms.
  - Faults with causes resulting in a “Fire Alarm Disconnected” message.

### **Appendix 3: Data from AFASP to NZFS prior to Connection**

The AFASP must provide NZFS the following data for each new connection. This information must be given electronically in the format and via an interface specified by NZFS.

- Fire Alarm owner name
- Fire Alarm owner town / city
- Fire Alarm owner suburb
- Fire Alarm owner street
- Fire Alarm owner street number
- Fire Alarm owner e-mail address
- Fire Alarm owner contact phone number
- Building name
- Building town / city
- Building suburb
- Building street
- Building street number
- Building occupancy
- Building Daytime Contact name
- Building Daytime Contact phone number
- Building Daytime Contact designation
- Building owner name
- Building owner town / city
- Building owner suburb
- Building owner street
- Building owner street number
- Building owner e-mail address
- Building owner contact phone number
- Building owner representative name
- Building owner representative town / city
- Building owner representative suburb
- Building owner representative street
- Building owner representative street number
- Building owner representative e-mail address
- Building owner representative contact phone number
- Key holder name(s)
- Key holder contact phone number(s)
- Fire alarm manufacturer
- Fire alarm make / model
- Fire alarm manufacturer type number or panel DBA
- Fire alarm system type
- Fire alarm detector types
- Fire alarm sprinkler head types
- Fire alarm service agent name
- Fire alarm service agent contact phone number
- Fire alarm service agent e-mail
- Fire alarm service agent pager number
- False alarm cause

## **Appendix 4: Tests prior to Connection to the Automatic Fire Alarm System**

The tests described below must be passed prior to the connection of Fire Alarms to the Automatic Fire Alarm System, whether or not they are required by the relevant standards for a Certificate of completion.

### Connection Test:

If the Fire Alarm has the ability to forward additional information with the fire message, then the message received by NZFS must include that additional information as detailed in the Automatic Fire Alarm Service Provider Computer Interface Specification.

- 1) The Service Agent informing the AFASP and NZFS Communication Centre Staff about the test.
- 2) The Service Agent sending a message indicating a fire event from the Fire Alarm to the NZFS's Despatching System.
- 3) NZFS Communications Centre Staff informing the Service Agent whether they received that message indicating a fire event.
- 4) The AFASP informing the Service agent whether they received that message indicating a fire event.
- 5) The test will be regarded as successful if both the AFASP and NZFS received that message indicating a fire event.

## Appendix 5: Glossary of Terms

The following terms, when used in this Code of Practice have the meanings as described below:

<b>Glossary Term</b>	<b>Definition</b>
Access Device	The access device connects a Fire Alarm with a telecommunications network.
AFASP	Automatic Fire Alarm Service Provider. Provides telecommunications and/or management services in respect of the Automatic Fire Alarm System.
Annual Availability	The annual proportion of time during which a unit or a system is able to perform its required function within the scheduled service hours (service hours here: 24 hours per day, 7 days per week).
Certificate of Compliance	A certificate of compliance is a written certification that the installation complies with the appropriate New Zealand Standard(s). The certificate is to be provided by the company responsible for the installation of a Fire Alarm or sprinkler system in a customer's building.
Certified Fire Alarm	A Fire Alarm that has been issued a 'Certificate of Completion' by an accredited inspection body to confirm that the installed Fire Alarm conforms to the relevant standards, and that passes the tests described in Appendix 4.
Communication Centre	NZFS operates three of these centres, one each in Auckland, Wellington and Christchurch. NZFS personnel who are responsible for dispatching fire appliances to Fire Alarm alarm-events and 111 calls staff Communication Centres.
Contact Point	Accept and act on calls in accordance with performance standards. Contact points as defined in agreements between the agreement parties.
Direct Connection	Telecommunications connection where messages are sent electronically without human intervention.
Fire Alarm	An installation of apparatus, which performs specified fire related functions in response to the operation of a sprinkler, detector, manual call point or other input, as defined in relevant NZ Standards.
Fire Message	Message from a Fire Alarm showing that one or more of the Fire Alarm's detectors are in a fire condition.
NZFS	New Zealand Fire Service or its appointed agent.
Service Agent	The agent responsible for the testing and maintenance of particular Fire Alarms (in particular the company or person responsible for attending to Fire Alarms in the event of an activation). The Service Agents are contractors to the fire alarm owners.
STS	Signal Transport System. Hardware, software, transmission links, and processes to transport messages between Fire Alarms and the STSMHS.

<b>Glossary Term</b>	<b>Definition</b>
STSMHS	Signal Transport System Message Handling Server. Routes messages received from the AFASP and Fire Alarms (if connected via a programmable device) to the Communication Centres.
STSMHSSP	Signal transport System Message Handling System Service Provider. Provides operation and maintenance services for the STSMHS, as agreed with NZFS.

## Appendix 6 – Change Control

No	Date	Page, Section	Change	Owner
1	28 <sup>th</sup> May 2004	P 23, A 6	Added Appendix 6.	Klaus Knospe
2	28 <sup>th</sup> May 2004	P 4	Replaced figure 1 with updated figure.	Klaus Knospe
3	28 <sup>th</sup> May 2004	P 12, A 1, clause 2	Added “ensure the device connecting the Fire Alarm to the telecommunications network ...”	Klaus Knospe
4	04 <sup>th</sup> June 2004	P 12, A 1, clause 2	Added “provide NZFS with the contact details of a contact person” in the last bullet point	Klaus Knospe
5	28 <sup>th</sup> April 2005	P 13, A 1, clause 2a)	Remove words “for more three months”.	Klaus Knospe