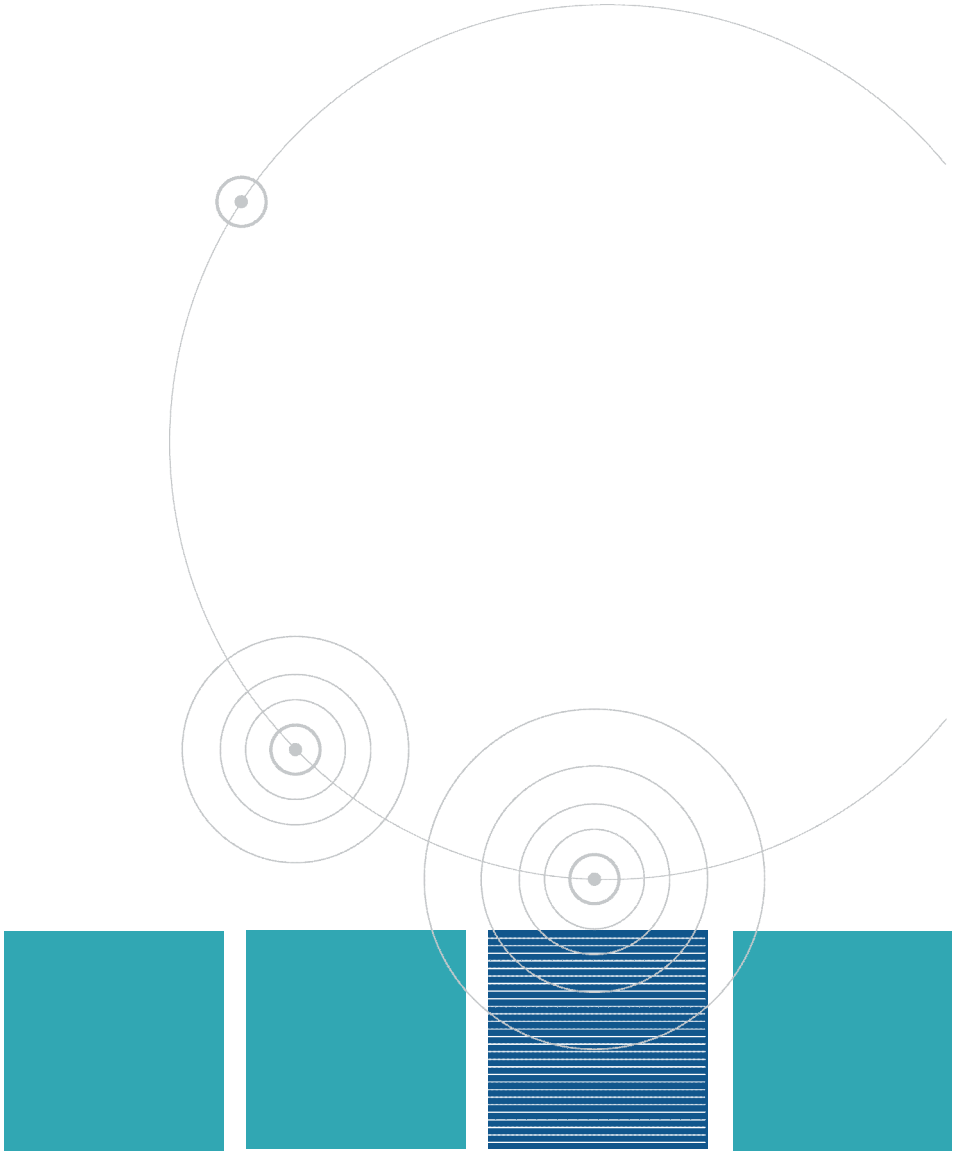
BASSETT



Hall Street Bondi Development
Fire Services Concept Report

Toga Developments Pty Ltd

26 May 2008

Fire Services Concept Report

Prepared for

Toga Developments Pty Ltd

Prepared by

Bassett Consulting Engineers
Level 11, 44 Market Street, Sydney NSW 2060, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8295 7555 F +61 2 8295 7500 E sydney@bassett.com.au www.bassett.com.au

ABN 22 004 873 634

26 May 2008

60022863

Printed on environmentally responsible paper.

Quality Information

Document Fire Services Concept Report

Ref 60022863

Date 26 May 2008

Prepared by Neil McFraser

Reviewed by David Caleo

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
	26/05/2008	Development Application	David Caleo Manager, NSW	

Table of Contents

1.0 Introduction

The Fire Services Protection and Detection Systems have been outlined in this report for the proposed Hall Street Bondi Development.

2.0 Sprinkler System

An automatic wet pie sprinkler system will be provided to serve the Basement Carpark in accordance with AS 2118.1 Fire Sprinkler Code and BCA requirements.

The water supply to the sprinkler service will consist of an incoming 150mm dia. connection to the Sydney Water towns main to satisfy the primary supply to the building. The primary water supply will be pumped by an electric booster pump and the secondary water supply will be pumped by a diesel booster pump located in the sprinkler pump room at basement level with direct access from the street via the fire stair.

A fire brigade sprinkler booster connection will be provided at the front of the building adjacent to the hydrant fire brigade booster connection and suction point to assist fire brigade personnel with fire fighting procedures in accordance with Authorities requirements.

The sprinkler booster pumps will provide the required water supply to the sprinkler system via sprinkler alarm valve sets located within a sprinkler valve room. Each sprinkler alarm valve set will supply a sprinkler installation covering a maximum of 9,000 sq. metres and will be housed within the sprinkler valve room which will have direct access from the street via a fire stair.

Isolating valves will be provided on each sprinkler installation in order to drain down a floor/area while all other floors fed from the same sprinkler alarm valve set can remain on line without loss of sprinkler protection.

All sprinkler isolating valves will be monitored with anti-tamper monitoring devices to provide indication of the valve if in the closed position.

Flow switches will be provided on each sprinkler installation to provide indication of the floor/area where the sprinkler system has actuated. All flow switches will be closed loop re-circulating flow switches for each level to re-circulate existing water within the pipe around the flow switch without any loss of water from the system when testing to satisfy the Green Star rating for the building.

A 10,000 litre effective capacity test water holding tank for weekly sprinkler pump test and yearly annubar flow test will be provided in the basement level below the level of the sprinkler pump room and sprinkler valve room.

Pipework used throughout the system will be in accordance with AS 1074 and AS 4118.2.1 - 1995.

External sprinkler protection with heat collector plates will be provided to all openings within 3m of the boundary where required to satisfy BCA.

Internal sprinkler drenchers will be provided to all openings within 6m of the path of egress to satisfy BCA requirements.

The system design parameters will be designed to satisfy the following:

- Ordinary Hazard Group 2 Classification to satisfy a density of discharge of 5mm/min over 144m² for car park areas.

The pumps will be selected to satisfy the required flow rate of approx. 1000 L/min to satisfy OH2 requirements.

All sprinkler heads will be industry standard response time index with temperature ratings as follows: -

- Carparks - Brass glass bulb conventional 68^0C 15mm orifice dia.

3.0 Fire Alarm Indication and Control Systems

A micro-processor based fully addressable fire alarm system will be provided throughout the development with the provision of a Fire Indicator Panel (FIP) with Fire Fan Control Panel (FFCP) incorporated located in the ground floor fire control room. A fire mimic panel will be provided in the main entrance lobby and interfaced with the FIP.

An addressable fire alarm system will be provided to meet with the latest technology in accordance with AS 1670.1 Fire Alarm Code, AS 1668.1 Smoke Control Code and BCA requirements. This system will pinpoint the exact location of a smoke detector that has activated in the building and will identify any detector in need of maintenance and cleaning.

Addressable smoke detectors will be provided throughout the floors installed on an extended spacing basis of 20 metres apart and 10 metres from walls in open areas in order to activate AS 1668.1 smoke control requirements for the building. In addition smoke detectors with probe will also be provided to mechanical plant for shutdown of mechanical systems and activation of smoke control systems within the building. Manual override controls will be provided at the FFCP for manual operation of all fire fans to allow Fire Brigade personnel the ability to override the preset function of the fan in fire mode, that is, to start up a fan if stopped.

A FFCP shall be installed either separately or combined with the FIP. It shall contain controls for each fire fan (auto - off - on) and indication for fan operations status as follows:

Red : Fan running
Green : Fan stopped
Amber : Fan fault

Addressable smoke detectors will be provided in electrical switch rooms, lift pits, top of lift shafts, LMR, etc to give an early warning of a fire condition.

Addressable smoke detectors will be provided adjacent to all fire stair exit doors and interfaced with FIP for automatic activation of stair pressurisation systems in fire mode.

Smoke detectors shall be of the photo optical type with a sensitivity of 5 - 10% obscuration.
The FIP will also monitor all other associated fire protection equipment such as sprinkler flow switches, booster pumps, tanks, hydrant system equipment, etc.

All wiring associated with the fire alarm system shall be in accordance with AS 1670.1, AS 3000 and AS 3013.

4.0 Emergency Warning & Intercommunication Systems (EWIS)

An Emergency Warning & Intercommunication System (EWIS) will be provided throughout the development in accordance with AS 1670.4 Fire Alarm & Intercom Code and BCA requirements. The system will comprise of a Main Evacuation Control Panel (MECP) located in the ground floor fire

control room and a Secondary Evacuation Control Panel (SECP) located in the ground floor security room interfaced with the MECP.

The MECP will be interfaced with the FIP and upon fire trip signal from the FIP a sequenced audible signal will be transmitted throughout the building via the speakers and sounders.

Flush mounted 100mm recessed emergency warning speakers will be provided in areas with ceilings and horn type speakers provided in areas without ceilings.

The evacuation signal shall include a verbal message stating “emergency” and “evacuate now”.

The speech transmission index within the zone shall be $\geq$0.5 where ambient noise levels are less than 85 dB(A) and the rating of speech intelligibility shall be in accordance with AS 1670.4 and shall not exceed 110 dB(A).

Warden intercom points (WIP phones) will be provided on each floor to allow direct communication between the floor and the fire control room.

Manual call point (MCP) will be provided on each level to manually initiate the automatic EWIS evacuation sequence throughout the building.

All wiring associated with the EWIS system shall be in accordance with AS 1670.4, AS 3000 and AS 3013.

5.0 Fire Extinguishers

Portable fire extinguishers will be provided throughout the development. The type of extinguisher will be selected to satisfy appropriate hazard classification and will be located in accordance with the BCA and AS 2444 Fire Extinguisher Code requirements. The extinguishers utilised will be powder AB(E) and B(E) and CO2 type fire extinguishers to electrical rooms.

6.0 Building Automation System

Voltage free normally open and closed contacts will be provided to monitor the following associated with the Fire Services:

1. Sprinkler System
   - o Pump run & pump fail indication on sprinkler booster pumps.
   - o Monitored gate valve isolated indication.
   - o Flow switch actuated indication for each floor.

2. Fire Detection System
   - o Fire detector activated indication for each floor.
   - o A/C fire trip indication.

3. Emergency Warning & Intercommunication System (EWIS)
   - o EWIS system activated indication for each floor.