Alpha
Engineering Consultant
2 ALEXANDRA ROAD, #03-03 DELTA HOUSE, SINGAPORE 159919
TEL: (65)6276 2228 FAX: (65)6276 9929 E-MAIL: aec@alpha.com.sg

Our Ref: OM-LC/024

12 July 2005

MEMORANDUM

To: All Engineering Staff

From: Andrew Loh

SINGAPORE STANDARD CP 10: 2005 – CODE OF PRACTICE FOR INSTALLATION AND SERVICING OF ELECTRICAL FIRE ALARM SYSTEMS

Please be informed that we have purchased a copy of CP10: 2005 – Installation and Servicing of Electrical Fire Alarm Systems and is kept in the Library for reference by the Staff.

ANDREW LOH

cc TLS/RT
cc Memo File

/kt

BCA
ISO 9000
CERT. NO.: 236
SS ISO 9001 : 2000

Contents

Page

Foreword 8

CLAUSES

Section One – Scope and general requirements

1.1 Scope 10
1.2 Application 10
1.3 Definitions 10
1.4 General requirements 12
1.4.1 Areas to be protected 12
1.4.2 Locations where protection is not required 14
1.4.3 Alarm zone limitation 15
1.4.4 Connection to alarm monitoring station 16

Section Two – Design considerations

2.1 System components and equipment 17
2.1.1 General 17
2.1.2 Compatibility 17
2.1.3 Special environment 17
2.1.4 Building management system 17
2.1.5 Design process for limitation of false alarms 18
2.2 Alarm panel 18
2.2.1 Main/sub alarm panel 18
2.2.2 Zone chart/mimic panel 19
2.2.3 Location 19
2.2.4 Alarm zone facilities 19
2.2.5 Precaution against failure 20
2.2.6 Visible indication for alarm panels 20
2.2.7 Other indications during the fire alarm condition 21
2.2.8 Identification and marking of indicators 21
2.2.9 Signals to fire service signalling transmitter 22
2.2.10 Fire alarm panel cabinet 22
2.2.11 Records 22
2.2.12 Program controlled fire alarm system 22
2.3 Power supply 23
2.3.1 Operating voltage 23
2.3.2 Form of supply 23
2.3.3 Battery charger 23
2.3.4 Battery capacity 23
2.3.5 Battery location 23
2.4 Connection of additional equipment 24
2.4.1 When permitted 24
2.4.2 Connection requirements 24

		Page
2.5	Audible and visual alarms	24
2.5.1	General	24
2.5.2	Audible alarm sounders	24
2.5.3	Audibility of general alarms	24
2.5.4	Code signalling	25
2.5.5	Restricted alarms	25
2.5.6	Multi-stage alarm	25
2.5.7	Visual alarm signal	26
2.5.8	Fire alarm sounder silencing	26
2.5.9	Fire alarm buzzer silencing	26
2.5.10	Fault buzzer silencing	27
2.5.11	Alarm verification feature (AVF)	27
2.6	Manual call points	28
2.6.1	General	28
2.6.2	Manual call point	28
2.6.3	Special environment	28
2.6.4	Operation	28
2.6.5	Supervision	28
2.6.6	Location	28
2.6.7	Alarm zone	28
2.7	Heat detection systems	28
2.7.1	General	28
2.7.2	Detectors	29
2.7.3	Spacing and location of detectors	29
2.8	Smoke detection systems	35
2.8.1	General	35
2.8.2	Detectors	35
2.8.3	Spacing and location of detectors	35
2.9	Flame detection systems	44
2.9.1	General	44
2.9.2	Stability and sensitivity	44
2.9.3	Spacing and location of detectors	44
2.9.4	Fixing of detectors	44
2.9.5	Detector lenses	44
2.9.6	Outdoor applications	44

Section Three – Installation and maintenance

3.1	Installation	45
3.1.1	General	45
3.1.2	Cables and wiring	45
3.1.3	Conductor sizing	45
3.1.4	Protection against electromagnetic interference	46
3.1.5	Joints and terminations	46
3.1.6	Mounting of detectors	46
3.1.7	Separation from other systems	46
3.2	Operation and maintenance manuals and "as installed" drawings	46
3.3	Symbols	46

Page

3.4 Maintenance 46
3.4.1 General 46
3.4.2 False alarm 47
3.4.3 Regular testing and inspection 47
3.5 Operations 49

ANNEXES

A Guidance for the selection of detectors (Informative) 50
B Fire alarm symbols 59
C Daily log – Records for automatic fire alarm installations 60
D Components of a fire alarm system 62

FIGURES

1 Typical heat detector spacing – Flat ceilings 31
2 Heat detector locations for concealed spaces with apex and sloping roof 32
3 Design criteria for point-type heat detectors 33
4 Typical smoke detector spacing – Flat ceilings 38
5 Point-type smoke detector locations for concealed spaces with apex and sloping roof 39
6 Typical beam-type smoke detector locations for sloping surfaces 40
7 Design criteria for point-type and beam-type smoke detectors located at apex of ceiling or roof 41
8 Smoke detector locations 43
9 Design criteria for point-type smoke detectors in structures with deep beams 43
A1 Typical field of view of flame detector 58
A2 Typical floor area protected by one flame detector 58
A3 Multiple coverage provided by four flame detectors 58
D1 The components of a typical fire alarm system 62