



APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP – 0154-10

Check whether application is: NEW RENEWAL

1.0 The Mircom Group of Companies Geoff Ruscoe
Manufacturer *Manufacturer's Technical Representative*
25 Interchange Way, Vaughan, Ontario L4K 5W3, Canada
Mailing Address
(905) 660-4655 gruscoe@mircom.com
Telephone *E-mail Address*

2.0 FX-2000 series Intelligent Analog Fire Alarm Control Panel
Product Name *Product Type*
FX-2000 Standard Series: FX-2003-6; FX-2003-12; FX-2017-12A; FX-2009-12;
FX-2000 Enhanced Series: FX-2003S-6; FX-2003S-12; FX-2017S-12A; FX-2009S-12
FX-2000 FleX-Net Series: FX-2003-12N; FX-2017-12N; FX-2009-12N
Product Model No. (List all unique product identification numbers and/or serial numbers)

General Description: Rigid wall mounted FX-2000 series panels consist of a main chassis with loop controller modules, initiating, indicating, and relay circuit modules, and auxiliary and/or programmable modules.

3.0 Mircom Group of Companies Geoff Ruscoe
Applicant Company Name *Contact Person*
3633 W. MacArthur Blvd., Suite 406, Santa Ana, CA 92704
Mailing Address
714-442-2064 gruscoe@mircom.com
Telephone *E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant

2/23/2011

Date

Regional Manager
Title

Mircom Group of Companies
Company Name

1/7



Registered Design Professional Preparing the Report

4.0

Forell/Elsesser Engineers

Company Name

Carlos Sempere, PE

Contact Name

C75648

California License Number

160 Pine St., 6th Flr., San Francisco, CA 94111

Mailing Address

415-837-0700

Telephone

c.sempere@forell.com

E-mail Address

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

Forell-Elsesser Engineers, Inc.

Company Name

Marco Scanu, SE

Contact Name

S4454

California License Number

160 Pine St., 6th Flr., San Francisco, CA 94111

Mailing Address

415-837-0700

Telephone

m.scanu@forell.com

E-mail Address

Anchorage Pre-Approval

6.0

- Anchorage is pre-approved under OPA- (Separate application for anchorage pre-approval is required)
Anchorage is not Pre-approved

Certification Method

7.0

- Testing in accordance with: ICC-ES AC-156
Other (Please Specify):
Analysis
Experience data
Combination of Testing, Analysis, and/or Experience Data (Please Specify):

Testing Laboratory (if applicable)

8.0

National Technical Systems

Company Name

Don Bennett

Contact Name

1536 E. Valencia Dr., Fullerton, CA 92831

Mailing Address

714-879-6110

Telephone

don.bennett@ntscorp.com

E-mail



Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 2.21g

S_{DS} (Spectral response acceleration at short period) = 2.63g

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component fundamental period(s) = N/A

Building period limits (if any) = N/A

Overall dimensions and weight (or range thereof) = See attachment, "Product Range Summary"

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: Yes No

Design Basis of Equipment or Components (V/W) =

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient) = 1.0

Ω_0 (System overstrength factor) = 1.0

C_d (Deflection amplification factor) = 1.0

I_p (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

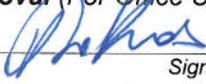
Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: Yes No

10.0 List of attachments supporting the special seismic certification of equipment or components:

- Test Report
- Drawings
- Manufacturer's Catalog
- Calculations
- Other (Please Specify): SE Acceptance Letter, Product Range Summary, CAN2-1708A.5 & AC156 Requirements Checklist

11.0 OSHPD Approval (For Office Use Only)

 _____ Signature & Date Chris Tokas, SHFR _____ Name & Title	2/23/2011 _____ Approval Expiration Date	December 16, 2016 _____ Approval Expiration Date S_{DS} (g) = 2.63 z/h = 1.0 _____ Special Seismic Certification Valid Up to
Condition of Approval (if any):		

3/7

OSP APPLICATION
 Mircom - FX-2000 Fire Alarm Control Panels
 Product Range Summary

Mircom - FX-2000 Fire Alarm Control Panels Product Range Summary					
	Max. Width	Max. Depth	Max. Height	Max. Weight	Notes
Enclosures					
BBX-1024	14.5 in	4.5 in	26.0 in	234 lbs	1, 2
BBX-1072A	25.0 in	6.5 in	32.5 in		1, 2
BB-5008	30.0 in	7.0 in	36.0 in		1, 2
BB-5014	30.0 in	7.0 in	60.0 in		1, 2
Notes					
1. All enclosures are for indoor use.					
2. All enclosures allow for the installation of back-up batteries; see below.					

INTERNAL COMPONENTS

All components manufactured by Mircom unless otherwise noted

	Enclosure ¹	Test Status
Chassis - Standard		
FX-2003-6	BBX-1024 (18ga)	tested
FX-2003-12	BBX-1024 (18ga)	interpolated
FX-2017-12A	BBX-1072A (16ga)	interpolated
FX-2009-12	BB-5008 or BB-5014 (16ga)	interpolated
ECX-0012 Expander		tested
Chassis - Enhanced		
FX-2003S-6	BBX-1024 (18ga)	interpolated
FX-2003S-12	BBX-1024 (18ga)	interpolated
FX-2017S-12A	BBX-1072A (16ga)	interpolated
FX-2009S-12	BB-5008 or BB-5014 (16ga)	tested
ECX-0012 Expander		tested
Chassis - FleX-Net		
FX-2003-12N	BBX-1024 (18ga)	interpolated ²
FX-2017-12N	BBX-1072A (16ga)	interpolated ²
FX-2009-12N	BB-5008 or BB-5014 (16ga)	interpolated ²
ECX-0012 Expander		tested
Transformers		
Yeo Hung Electronics TR-061 29VAC/240VA		tested
Yeo Hung Electronics TR-063 29VAC/377VA		tested
Batteries		
Cell 12V12AH Sealed Lead Acid Battery - 12V, 12AH		tested
RS Power 12260 Sealed Lead Acid Battery - 12V, 26AH		tested

FORELL/ELSESSER ENGINEERS, INC.
 160 Pine Street, 6th Floor
 San Francisco, CA 94111

9/7

OSP APPLICATION
Mircom - FX-2000 Fire Alarm Control Panels
Product Range Summary

Adder Loop Controller Modules

ALC-H16 Hardwire Loop Controller	tested
ALC-198S Single Analog Loop Controller	interpolated
ALC-396S Dual Analog Loop Controller	tested
ALCN-396S Dual Loop Controller	interpolated

Adder Hardwire Modules

DM-1008A Eight Initiating Circuit Module	tested
SGM-1004A Four Indicating Circuit Module	tested
RM-1008A Eight Relay Circuit Module	tested
PR-300 Polarity Reversal/City Tie Module	tested

Remote Annunciators

RAX-LCD Remote Shared Display	interpolated ³
RAM-1032 Main Remote LED Annunciator	interpolated ³
RAX-1048 Adder Remote LED Annunciator	tested
RAXN-LCD Remote LCD Annunciator	interpolated ³
RAX-1048TZ Programmable LED Annunciator	interpolated ³

Programmable Modules

RAX-1048 Programmable Zone LED Annunciator	tested
FDX-024 Fan Damper Control Module	interpolated
FDX-008 Fan Damper Control Module	tested
IPS-2424 Programmable Input Switches	tested

Graphic Annunciator Driver Modules

MGD-32 Master Graphic Driver	interpolated ³
AGD-048 Adder Graphic Driver	interpolated ³

Fire Network Controller Modules

FNC-2000 Fire Network Controller Module	interpolated ⁴
FOM-2000-SP Fiber Optic Network Adder Module	interpolated ⁵

Adder Auxiliary Modules

UDACT-300A Digital Alarm Communicator	tested
---------------------------------------	--------

Notes

1. All enclosures use cold rolled steel, removable doors, and are designed for indoor use.
2. FleX-Net units differ from Enhanced units by having additional processor power and memory on the otherwise-identical main board, and also include a Network adder module FNC-2000.
3. Annunciator Modules use subcomponents identical to those used on Main Chassis components.
4. FNC-2000 is interpolated by the DM-1008A and SGM-1004A, which are part of the same component family and envelope the FNC-2000.
5. FOM-2000-SP is based on FNC-2000, plus an electrical-to-fiber pathway adapter using ST connectors.

TEST SUMMARY

Tested Unit #1 (NTS1)

NTS 1

FX-2003-6 Compact Main Chassis in BBX-1024 Enclosure

Intelligent Analog Fire Alarm Control Panel

(smallest in product line)

14.5"W x 4.5"D x 26"H

51.5 lbs



The FX-2003-6 chassis – the main panel inside the enclosure - includes one analog loop, four indicating circuits, an LCD display, 16-zone LED annunciator, and a 6 amp power supply. The chassis includes space for three adder modules, but these were left vacant in order to minimize the test weight.

Below the chassis are two 12Ah batteries. No other major subcomponents were included.

The chassis and battery brackets are installed in the 18ga BBX-1024 enclosure using #8 hex nuts onto supplied lugs. The enclosure is secured to vertical backing using (4) 3/8" bolts and nuts approximately 2" above and below the main chassis. The panel can be surface mounted or recessed into the wall.

NTS 2

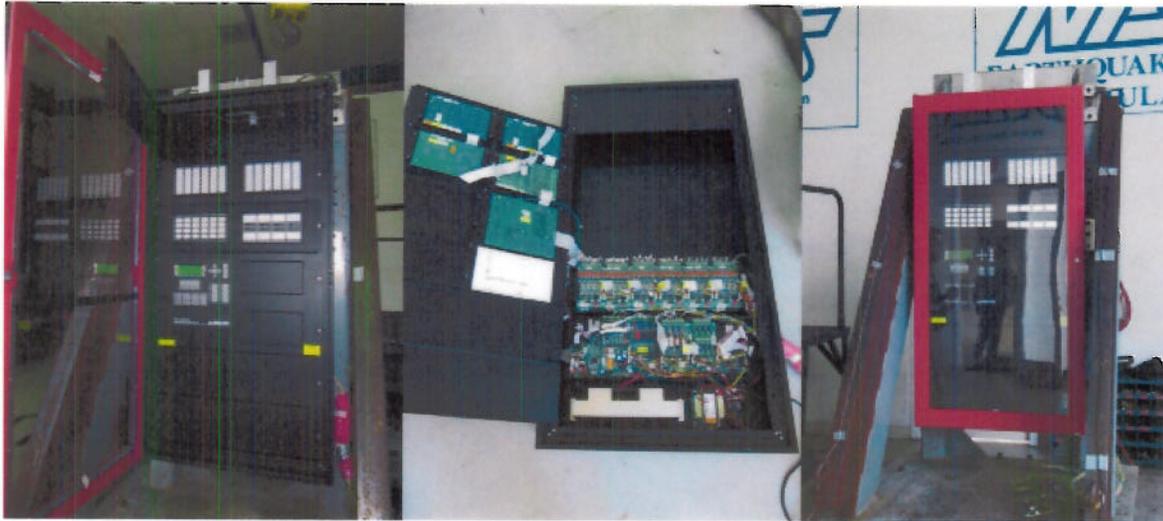
FX-2009S-12 Large Main Chassis in BB-5014 Enclosure

Intelligent Analog Fire Alarm Control Panel

(largest in product line)

30"W x 7"D x 60"H

234 lbs



The FX-2009S-12 chassis – the central, 2-bay-high component with an LCD screen - includes one analog loop, four indicating circuits, an LCD display, 16-zone LED annunciator, and a 12 amp power supply.

Above the main chassis are two ECX-0012 Expander Chassis, with:

- RAX-1048 Adder Remote LED Annunciator (upper left and upper right)
- IPS-2424 Programmable Input Switches Module (middle left)
- FDX-008 Fan Damper Control Module (middle right)

Behind the main chassis are the following adder modules:

- DM-1008A Eight Initiating Circuit Module
- SGM-1004A Four Indicating Circuit Module
- RM-1008A Eight Relay Circuit Module
- PR-300 Polarity Reversal/City Tie Module
- ALC-H16 Hardwire Loop Controller
- ALC-396S Dual Analog Loop Controller
- ALCN-396S Dual Loop Controller
- UDACT-300A Digital Alarm Communicator

Below the chassis are two 26Ah batteries. No other major subcomponents were included. The chassis and adder modules are installed in the 16ga BB-5014 Enclosure using #8 hex nuts onto supplied lugs.

The enclosure is then mounted to vertical backing using (6) 3/8" bolts and nuts. The panel can be surface mounted or recessed into the wall.

7/7