FIRE DETECTION AND ALARM SYSTEM

ENGINEERING SPECIFICATION

INTELLIGENT REPORTING FIRE DETECTION SYSTEM

April 2023

PART 1 GENERAL

1.1 DESCRIPTION

A. This specification includes the furnishing of an Ethernet-connected PC based graphical life safety monitoring system.

1.2 SCOPE

A. A PC based graphical life safety monitoring system shall be installed in accordance with the project specifications and drawings.

B. The PC based graphical life safety monitoring system shall include, but not be limited to, optional touch screen or LCD wide screen monitor, one or more PC based graphical workstations, all input/output devices, network communications media, control equipment, auxiliary control devices, power supplies, and wire / fiber optic media as shown on the drawings and specified herein.

C. A supervised interface to NOTIFIER fire alarm control panels and NOTI-FIRE-NET shall be made available.

D. The system shall employ an advanced technology network to monitor and control the fire system.

E. The system shall include a device that allows remote viewing of the CLSS Horizon workstation via the Internet or an intranet.

F. The system shall include a redundant interface for NOTI-FIRE-NET network for survivability.

G. The system shall support a variety of topologies and media and shall provide an industry standard open architecture transport layer protocol.

H. The system shall be electrically supervised and monitor the integrity of all conductors.

I. The system shall provide E-Mail functions capability to send system information via an email server to an email account.

1.3 SUBMITTALS

A. General

1. Ten copies of all submittals shall be submitted to the architect, engineer, and owner for review.

2. All references to manufacturer’s model numbers and other pertinent information herein are intended to establish minimum standards of performance, function and quality.

3. Equivalent compatible equipment from other manufacturers may be considered as a substitution for the specified equipment as long as the minimum standards are met.

4. Substitute equipment proposed as equal to the equipment specified herein shall meet or exceed the minimum specified standard. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

B. Shop Drawings

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Wiring diagrams shall indicate all wiring for each item of equipment and the interconnections between the items of equipment.

3. Include manufacturer’s name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.

C. Manuals

1. Submit simultaneously with the shop drawings & submittals; complete operating manuals and technical data sheets.

2. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system.

3. Approvals shall be based on complete submissions of manuals together with shop drawings.

D. Certifications

1. Together with the shop drawing submittal, submit a certification from the major equipment manufacturer indicating that the proposed supervisor of installation and the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer and factory trained on all equipment contained in the submittal. Include names and addresses in the certification.

2. Provide NICET Certification documentation for factory authorized field technicians performing field final connections and system programming.

1.4 GUARANTY

A. All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one (1) year from the date of acceptance. The full cost of maintenance, labor, and materials required to correct any defect during this one-year period shall be included in the submittal bid.

1.5 WORKSTATION PERFORMANCE

A. The network will interface and report the individually monitored system’s status via a user-friendly Graphical User Interface (GUI) based software workstation.

B. The software shall operate under Microsoft® Windows® 10 64 bit OS as manufactured by Microsoft Corporation.

C. The GUI based software must be capable of graphically representing each facility being monitored with floor plans and icons depicting the actual locations of the various systems; and / or sensors’ locations as well as view the system events in text mode.

D. The software shall use a 1920 pixels X 1080 pixels GUI display capable of showing a large primary floor plan display, a key map representative of a larger view of the primary display and its relationship to the facility being monitored, the current operator, number of fire, supervisory, pre-alarms, troubles, and security events within the network as well as outstanding events and acknowledged events.

E. The software shall have the capacity of at least 1,000 screens / floor plans or as dictated by hard drive space and installed VIDEO and RAM memory for efficient operation.

F. The software shall have the ability to float and dock windows to support dual monitors display.

G. The workstation shall have the ability to support graphic printing of all data including graphical floor plans, system activity, history, and guidance text. A Windows® compatible printer shall be supported for the graphics and report printer options.

H. The workstation software shall permit automatic navigation to the screen containing an icon that represents the system or sensor in the event of an off-normal condition.

I. The system/sensor icon shall indicate the type of off-normal condition, flash, and change to the color associated with the off-normal condition (e.g., RED for ALARM and YELLOW for TROUBLE).

J. The software shall allow the attachment of text (TXT) files, sound (WAV) files, image (BMP) files, and video (AVI) files to each system or sensor icon allowing additional information to be provided to the system operator for responding to the off-normal condition. The software must have the ability for an attachment for each major event type per device.

K. The software shall allow the importation of externally developed floor plans in Drawing Exchange Format (DXF), Windows Metafile (WMF), JPEG (JPG), Graphics Interchange Format (GIF) and Bitmap (BMP) format.

L. The software shall provide automatic navigation to the screen containing the icon of any system or sensor when an event is initially annunciated. In addition, operator navigation to screens containing outstanding events shall be accomplished by “clicking on” the event from either the acknowledged or unacknowledged event.

M. History Manager. The software shall contain a History Manager, which shall record all system events with a time and date stamp as well as the current system operator’s name.

1. The system shall provide the ability to store all off-normal events experienced by the various sub-systems that are monitored by the system.

2. All events shall be recorded with a time and date stamp and the system operator shall be provided with the ability to log a pre-defined response or a custom comment for each off-normal event and have that comment stored in the history file with the time, date, and operator name.

3. Provide the ability to conduct searches and generate subsequent reports, based on all events for a single system / device address, a specific node, a specific type of off-normal condition and date range (mm/dd/yy to mm/dd/yy) or combinations of these search parameters. The number of entries in the history file that match the determined search criteria will be displayed.

4. The History Manager shall automatically back-up the history file at 2,500,000 events.

5. It shall be possible to pre-select data fields for reporting and then saving the report as a template. It shall also be possible to schedule the pre-defined report to print at a designated time.

6. The History Manager shall provide the operator the ability to select the number of days or number of months to back-up history.

N. Alarm Monitoring. The system shall provide for continuous monitoring of all off-normal conditions regardless of the current activity displayed on the screen.

1. If an operator is viewing the history of a sub-system and an alarm condition should occur, the system shall automatically navigate to the graphic screen showing the area where the off-normal event is occurring.

2. The system shall prioritize all off-normal events as defined by National Fire Alarm Code® 72 into the following categories: fire alarms, troubles, supervisory alarms, pre-alarms and security alarms.

3. The system shall display a running count of all events by type in an alarm summary window. The alarm summary window shall include at least five counters, defaulted to Alarm, Pre-Alarm, Trouble, Security, and Supervisory events.

4. The system shall show a running list of all unacknowledged events and acknowledged events and allow the system operator to acknowledge an event by “double-clicking” on that event in the Unacknowledged Events box. The Unacknowledged and Acknowledged Events boxes shall contain an abbreviated description of the off-normal condition.

5. The details of the condition may be viewed by selecting event in the unacknowledged events box.

6. The system shall allow the attachment of user-definable text files, image files, video files, and sound files to each device / system monitored (for every event state) in order to facilitate the operators and response personnel’s response to the off-normal condition.

7. The system shall record all events to the system’s hard drive. A minimum of 2,500,000 events may be stored.

O. Reports & Logs:

1. The system shall provide for the ability to generate reports based on system history.

2. The system shall allow the system operator to enter custom comments up to 255 characters for each event and have those comments recorded in the system’s history file.

P. Control Aspects of System Software

1. The system shall have the ability to monitor and control the following NOTIFIER® Fire Alarm Panels using a CLSS Gateway interface: INSPIRE™ and ONYX® series control panels.
2. The Gateway interfaces shall have the ability to be constructed in a redundant configuration by having multiple CLSS Gateways on the same network, monitored by multiple workstation clients.

 4. The system shall provide an CLSS Gateway interface for remote connections of the Notifier Network containing the following panels via Ethernet (TCP/IP infrastructure): INSPIRE™ and ONYX® series control panels.

5. The CLSS Gateway will:

* Serve as a bridge between a Horizon Workstation and a NOTI-FIRE-NET network, and it uses that Workstation as the primary reporting station for the NOTI-FIRE-NET network
* Translates a NOTI-FIRE-NET network’s panel and device data into data that can be interpreted by the Horizon Workstation software application

6 The workstation shall provide configuration utilities for monitoring and control profiles. These profiles shall be user definable for distribution of monitoring and control allowances for operators per workstation.

Q. The software shall be password protected and provide for the definition of security profiles for operator access control.

R. The software shall contain provision for defining monitoring profiles of pre-selected Nodes for monitoring. This shall include provision for status types within the selected nodes.

S. The software shall support sending real-time off-normal event notifications to designated email addresses.

T. The PC based graphical facilities monitoring system shall include a Configuration Tool that provides the following features:

1. Allows operators the ability to create and edit graphics
2. Set up Gateway Connections and define their nodes
3. Set system operating mode
4. Add and edit objects on screens
5. Configure colors and sounds for the status classes

PART 2 PRODUCTS

2.1 GENERAL

A. The product(s) shall be manufactured by as provided by NOTIFIER®. Model numbers specified are those of NOTIFIER® and are to establish the minimum standard of operating characteristics and quality.

B. Substitute equipment proposed as equal to the equipment specified herein shall meet or exceed the minimum specified standard. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

C. All equipment and components shall be new, and the manufacturer’s current model. The materials, equipment, and devices shall be tested and listed by a nationally recognized approval agency.

2.2 WORKSTATION

A. The system shall be a LAN-Connected Horizon Fire Systems Command Interface.

B. The system shall operate on no less than an IBM compatible Intel I7 processor on the Microsoft® Windows® 10 OS platform.

C. The workstation shall be an industrial grade computer listed for UL Standards 864 (Control Units for Fire-Protective Signaling Systems). The workstation shall be capable of annunciation and control of all fire detection points.

D. The workstation shall have: no less than 16 Gigabytes of RAM, Solid-State Hard Drive with no less than 240 Gigabytes of storage space, a minimum of 64 megabytes of video RAM, internal supervisory CPU watchdog board with audible annunciator, 100 Base-T Ethernet NIC card, a 104 key keyboard, and a mouse type pointing device with a center wheel.

E. The workstation shall come equipped with all necessary gateway modules to allow connection to the network(s) it monitors as standard equipment. All workstations shall support Ethernet communications when multiple workstations are required.

F. The workstation shall support dual SVGA monitors and be supplied with a 22” or 42” flat screen LCD monitor with integrated speakers or an optional touch screen monitor.

G. Alarm annunciation shall appear on all workstations and may be silenced at each local workstation.

1. Only one workstation and operator shall be in command of the system for global alarm acknowledgement at any time.

2.3 PRINTER

A. Support one or more Windows® compatible printers to be located and connected each workstation for graphics and report printing.

B. Support one model PRN-7, 80-column dot matrix tractor feed industrial grade printer for event and date-stamped printouts of off-normal events and status changes per workstation.

2.4 INTEGRATION NETWORK

A. Workstation Network:

1. Computers shall be networked using Ethernet supporting the use of TCP/IP protocol for local area systems.

2. A single CLSS gateway interface shall be capable of supporting 50 Horizon workstations (clients) and a single Horizon workstation shall be capable of supporting 200 CLSS Gateways.

3. An Ethernet Hub must be supplied for connection of multiple workstations, gateways, and/or network printers.

END OF SECTION