

FIRE ALARM CONTROL PANELS

FACP MODEL TYPE:

- SIMPLEX FACP 4120 or minimally 4100U model
- PYROTRONICS FACP XLS, MXL or minimally MXL IQ

FACP FEATURES:

- Full detector SENSITIVITY and device SERVICE STATUS reporting.
- Programmable FUNCTION SWITCHES (at least four) located at main FACP and ANNUNCIATORS.
- Dedicated network communications meeting 100% COMPATIBILITY with existing network fire systems.
- DISABLE HORNS & STROBES from the panel.
- DISABLE FANS, DOOR HOLDERS, ELEVATORS, etc. from the panel.
- SILENCABLE Audible Circuits (from FACP).
- LCD Annunciators.
- System annunciator shall be located at the Main entrance of the building (pre-determined Fire Department response location), and shall be readily visible in the entrance lobby or vestibule.
- All system conditions shall be annunciated through LCD annunciator and network monitors.
- FACP shall not be installed in any area where ambient temp could exceed 86F, or where excessive humidity or dust might be present. Control unit shall incorporate an "Event Memory" and the ability to access and view each event in memory shall be from the keypad.
- FACP shall provide AT LEAST TWO FREE INTERNAL expansion card bays for future expansion.

FACP NETWORK COMMUNICATIONS:

- All FACP's shall be NETWORKED to FMS Fire Alarms Systems Shop (located in building 49 rm A063/065) & Public Safety Dispatch Center (located in Building 025 Grace Watson).
- All networked FACP's will provide a BI-DIRECTIONAL communication interface to both Campus Safety monitoring station and FMS Bldg. 49 Fire Alarm Systems Shop.
- All networked systems shall allow for both "Local Reset" and "Reset From Networked Head End".

FIELD DEVICES**INITIATING DEVICES:**

- ALL FIELD DEVICES shall be programmed with individual addresses.
- ALL MONITORING/SUPERVISORY DEVICES shall be programmed with an individual address.
- ALL PHOTOELECTRIC SMOKE SENSORS shall be intelligent analog type detectors.
- ALL THERMAL SENSORS shall be intelligent analog type detectors.
- ALL DUCT DETECTORS shall be the sample tube type and have key operated testing stations accessibly mounted (test switch to be mounted no higher than 72”).
- ALL PROJECTED BEAM SMOKE DETECTORS will have local key operated testing stations accessibly mounted (test switch to be mounted no higher than 72”).
- All manual stations shall be dual-action type, requiring operator to make two (2) distinct and separate actions to initiate alarm.
- LINE ISOLATORS shall be installed every 30 devices, allowing no more than 30 devices to be affected in the event of a wiring fault.
- ALL DEVICES LOCATED ABOVE CEILINGS shall have a remote LED indicator mounted on the wall at eye level as near as possible below the device and labeled accordingly.
- **ALL DEVICES MUST BE INSTALLED WITH GOOD ACCESS FOR SERVICING.**
- Smoke detector zones shall incorporate and utilize a smoke alarm verification feature, whereby a delay is allowed in alarm sequence to allow verification of alarm received.
- Initiating device circuits shall be wired Class A to line isolators.
- Smoke detection shall **never** be installed in:
 - 1) In laboratory fume hood exhaust,
 - 2) Maintenance or mechanical areas,
 - 3) Attics, Exterior of buildings, or any location where temperature may be below 40F or above 100F, or where high humidity, dust, insects or airborne particulates might be present.

NOTIFICATION APPLIANCES:

- ALL NOTIFICATION APPLIANCES shall be of a manufacture approved by FACILITIES MANAGEMENT SERVICES (FMS).
- ALL VISUAL NOTIFICATION APPLIANCES will be synchronized with all others in a given area.
- ALL PERIPHERAL DEVICES shall be powered from the building emergency power circuit and battery backed.
- ALL Notification Appliance Circuits (NAC) POWER EXTENDERS shall be approved by FACP manufacturer, support full monitoring and meet all NFPA requirements.
- ALL NAC POWER EXTENDERS shall be installed next to the main FACP, all other installation locations must be approved by FMS.

- ALL NAC POWER EXTENDERS shall be monitored by an assigned individual addressable monitoring point for each extender with descriptive annunciation programmed for that device on the main FACP and remote LCD ANNUNCIATOR displays, and NETWORKED COMMAND CENTERS (NCC).
- Installation, hardware, and programming shall support all functions associated with a walk test. During a walk test, horn and strobe functionality shall be supported while testing devices using the walk test with signal feature. Devices and wiring methods that do not support testing in walk test mode with a signal having full functionality of that feature are **NOT** acceptable.

AUXILIARY DEVICES:

- ALL FAN SHUTDOWN RELAYS shall be addressable monitored devices that may be bypassed at the main FACP and locally indicate the operational state (status LED on control relay shall be at or near eye level) of the relay. All shutdown controls shall be wired to the normally open, held closed, contacts during normal status (no Alarm) of the FACP.
- ALL SMOKE VENT RELEASES shall have associated service bypass control switched from the main FACP front panel.
- ALL SMOKE VENT RELEASES will utilize 24 volt reset-able latching devices only, and shall be battery backed by main FACP or auxiliary supply. Fusible links shall not be a primary releasing mechanism and no ETL links will be used.
- ALL DOOR HOLDER CIRCUITS shall be 24 Volts and be on separate dedicated power supplies and have associated service bypass control switched from the main FACP front panel. Having separate power supplies for Door Holders prevents loss of main power supply due to a shorted Door Holder circuit.

SYSTEMS WIRING

- Identify Fire Alarm circuits with printable tape at all terminal and junction locations in a manner that will prevent unintentional interference with the fire alarm circuits during testing and servicing (760.10).

FACP WIRING:

- FACP shall be wired to building LIFE SAFETY EMERGENCY POWER with circuit labeling placed on FACP faceplate upper right hand corner including FACP indicated on panel circuit schedule.

ADDRESSABLE LOOP WIRING:

- ALL ADDRESSABLE LOOPS shall be wired using stranded #18/ 2 conductor, shielded, with a drain wire, with conductor insulation colored red and black, RED PVC jacket, FPLP rated cable UL approved for use in fire alarm system wiring and approved by FMS.
- ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS (Strobes) shall be wired using stranded #14/ 2 conductor cable, with a RED PVC jacket, with conductor insulation colored red and black, FPLP rated cable UL approved for use in fire alarm system wiring and approved by FMS.
- ALL AUDIBLE HORN NOTIFICATION APPLIANCE CIRCUITS shall be wired using stranded #14/ 2 conductor cable, with a RED PVC jacket, with conductor insulation colored red and black, FPLP rated cable UL approved for use in fire alarm system wiring and approved by FMS.

- ALL AUDIBLE SPEAKER NOTIFICATION APPLIANCE CIRCUITS shall be wired using stranded #18/2 or #14/2 conductor, shielded, with a drain wire, with conductor insulation colored white and black, RED PVC jacket, FPLP rated cable UL approved for use in fire alarm system wiring and approved by FMS (see manufacturers wiring requirements).
- ALL wiring associated with FIRE ALARM systems must be in conduit.
- ALL AUDIBLE AND VISUAL NOTIFICATION APPLIANCE CIRCUITS shall be wired CLASS "A".
- ALL Fire Alarm system junction boxes and cover plates shall be painted RED.
- 24 Volt AUX wiring shall be run along with all addressable loop data cables.
- All DOOR HOLDER circuits shall be 24 VOLT DC and powered by separate dedicated power supplies (separate from power supply for Fire Alarm system).

INSTALLATION:

FACP (CPU) AND TRANSPONDER (RPU) UNITS:

- All system enclosures housing central and remote processing units shall be mounted using stand off bolts or vertically mounted Kindorff to isolate the enclosure from water/moisture contamination.
- All enclosures housing LCD DISPLAY CONSOLES shall be mounted so that the display is placed between 60" and 68" above the floor (eye level).
- All equipment, devices, and installation shall conform to NFPA 72, NEC, and ADA requirements.
- Strobes shall be mounted at 80"-96" AFF. Pull boxes shall be mounted 42"-54" AFF.

NAC POWER SUPPLIES:

- All NAC power extenders shall be mounted along side of FACP using stand off bolts or vertically mounted Kindorff.
- All interfacing modules and visual synchronizing devices shall be mounted, on stand off bolts or Kindorff, in close proximity to their associated power supplies and labeled accordingly to reflect address, purpose and circuit.
- All NAC Supplies shall be labeled by NAC number and circuit number including type of circuit for area served (i.e. NAC 1 Circuit 2 Horns).

FAN CONTROL INTERFACES:

- All FAN CONTROL relays shall be mounted next to or in close proximity to associated motor control / speed drives that are being interrupted.
- All control relays shall be mounted with LED status indicators within 36"-72" of fan contactor or VSD and be labeled for both duct detector address and air handler associated with shutdown.

ADDITIONAL REQUIREMENTS:

- FMS will assign ADDRESS LABELS for all reporting points on fire alarm system. Contractor will supply FMS with floor plans showing devices and addresses.
- Minimum conduit size shall be 3/4" EMT.
- Fire Alarm system batteries shall be mounted in separate enclosure from the FACP. Battery enclosures be mounted on Kindorff stand offs in close proximity of FACP.
- An alternate for unit pricing of detectors and pull stations shall be included with the bid package.
- COMPLETE as-built drawings and riser diagrams with device addresses and installation documentation (including complete manual sets) of each device, shall be provided to Owner.
- A digital copy of the as-built drawings in AutoCAD shall be provided to Owner, and become property of the Owner.
- Warranty shall be for One Year and include 4 hour response time 24 Hours Per day including weekends and Holidays.
- All Devices will be visibly labeled with device address