

DIVISION 13 - SPECIAL CONSTRUCTION

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13030 SPECIAL PURPOSE ROOMS

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Copy Rooms

A minimum area of 5' x 6' for small copy machines and 6' x 9' in length for large copy machines by shall be reserved in office area designs. This space should be equipped with a dedicated circuit and shelving and/or lockable cabinets.

The copy room area should be "hidden" from daily traffic yet central to the entire user population.

Recycling Areas

Allow consideration for the inclusion of the following space requirements as a minimum:

TYPE OF MATERIAL

MINIMUM SPACE REQUIRED

Paper generated by copy machines or in work stations	22" deep x 24" wide
Newspaper generated in common areas	22" deep x 24" wide
Aluminum collection - near vending machines or in kitchen	22" deep x 12" wide
Individual Offices: White and colored paper only	22" deep x 18" wide
White, colored paper and newspaper	22" deep x 24" wide

Custodial Closets

There shall be one custodial closet per building floor level, minimum. Spaces shall be designed according to the following: Custodial closets should contain a minimum working space of 92 square feet and shall be equipped with a 3'0" minimum door.

Closets shall be equipped with:

A corner located, floor mounted porcelain mop sink (with an 8" curb)

Reinforced hot/cold tap with institutional grade hardware

Wall mounted mop racks and a minimum of twelve lineal feet of 11" deep fixed shelving. Shelving to be mounted at five foot height to allow for machine storage underneath.

A minimum 5'0" x 2'0" clear floor space shall be maintained to accommodate a vacuum unit. Larger spaces may be necessary at times.

A floor drain, with the entire floor sloped a minimum 1/4" per foot, to the floor drain is required.

Input from the Custodial Department is mandatory during project programming phase.

There shall be a minimum of 3 GFI duplex electrical outlets.

Water heaters, electrical panel boxes, pipe chases, entrance doors to adjoining rooms, etc. shall not be included in custodial closet space.

Closet floors shall be color sealed concrete, or painted with an epoxy paint.

Extra Stock Storage Rooms

DP shall review the closeout requirements for extra stock product and determine the amount of storage space required to accommodate these materials. It is preferred that the room be located on the ground floor and in a secured room.

Dining Rooms

Refer to 11460 for information on Unit Kitchens.

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SOUND, VIBRATION AND SEISMIC CONTROL

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13120 PRE-ENGINEERED STRUCTURES

13800 BUILDING AUTOMATION SYSTEMS

13810 Energy Monitoring and Control Systems (See Division 15)

13815 Environmental Control Systems (See Division 15)

13820 Communications Systems (See Division 16)

13900 FIRE SUPPRESSION AND DETECTION SYSTEMS

13905 General requirements:

New installations, remodel and renovations of all fire life safety systems; Fire alarms systems, Automatic suppression system, Alternate fire suppressions systems, Hydrants, Fire mains and underground supply pipe shall be reviewed and approved by NAU Fire Marshal prior to any construction start.

Regulatory and code Compliance: All new installation, alterations and modifications to all fire life safety systems shall comply with the adopted code edition as specified in Division 1 at the time of bid. All other referenced codes and materials shall comply with the most recent available edition or as otherwise specified.

Arizona State Fire Code
International Building Code (IBC)
International Fire Code (IFC)
National Fire Protection Association (NFPA)
International Electric Code (IEC)
The Americans with Disabilities Act. (ADA)

13910 Fire Alarm detection and Notification Systems

Approved fire alarm equipment manufactures and control panels:

Notifier

NFS2 - 3030

NFS2 - 640

NFS2 - 320

13910 Fire Alarm Detection and Notification Systems

Designer/Installation contractor qualifications:

Installation contractor shall be a factory certified authorized distributor – Notifier.

System designer – Fire alarm system plans and specifications shall be developed in accordance with NFPA 72 by persons who are experienced in the proper design, application, installation, and testing of fire alarm systems.

System installer – installation personnel shall be supervised (to include conduit, boxes and wiring installation) by persons who are qualified and experienced in the installation, inspection and testing of fire alarm systems. Qualified personnel shall include, but not limited to, the following:

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- (1) Factory trained and certified personnel
- (2) National Institute of Certified in Engineering Technologies – NICET –Fire alarm level II
- (3) Personnel licensed or certified by a State or local authority

System Requirements:

All new Fire systems shall be addressable. All fire alarm equipment, components and software shall be **non-proprietary** and shall be completely field programmable by Northern Arizona University Fire/Life Safety Personnel. Contractor shall provide all access-login codes, programming software and minimum four (4) hour training to include all aspects of panel functions, operation, programming and trouble/repair procedures.

Contractor shall provide any peripheral devices required or provided by the manufacture to program system devices or components.

Fire Alarm Control shall communicate; UDACT (Universal Digital Alarm Communicator/Transmitter) utilizing the Ademco Contact ID Format. Panel/UDACT shall communicate “point” programming. Contractor shall provide all panel and UDACT programming. NAU-FLS will provide primary, secondary and account numbers. Contractor shall provide all necessary phone connections and equipment to complete the UDACT connections.

All new Fire Alarm Systems shall include at a minimum detection in all the following areas; all corridors, hallways, mechanical, electrical, telecom equipment rooms. Additional detection may be required in other hazardous locations as identified during the NAU - Fire Marshal review.

All residential buildings shall be “total detection” systems and shall provide addressable detectors with sounder bases and visual appliances in all suites/sleeping areas. Addressable in room detector shall report as a supervisory at the main panel.

All academic buildings shall be provided with manual pull stations installed in accordance with NFPA 72.

All residential building shall be provided with one (1) common area manual pull station located at the main entrance RA desk. Manual pull stations shall be provided from independent exits from mechanical, electrical and other service or remote exits.

The designated primary entrance shall provide a fire alarm annunciator system.

Main FACP/Remote annunciator displays shall be mounted at a height of 60 inches from the floor to the centerline of the display.

All auxiliary panels (NAC Power) shall be mounted at a height of 60 inches from the floor to the top of the enclosure.

Pull stations shall be mounted at a height of 48 inches from the floor to the centerline of the pull.

All wall mounted visual /audio devices shall be mounted at a height of 80 inches from the floor or 6 inches below the ceiling to the centerline of the device whichever is lowest.

External battery boxes shall be specifically designed an approved for the purpose of housing batteries and shall be mounted immediately below the main FACP. Battery boxes shall not be installed in sub floors.

Fire alarm detection devices shall be installed as per their listing. Spot type smoke detectors shall be spaced at the detectors UL listing – open areas, corridor, hallways at 30’ unless approved by NAU-FLS prior to installation.

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All beam and duct detectors shall provide remote test/ indication devices.

There shall be no carry-over pre-existing sub-panels in the final system.

All surface mounted fire alarm pull stations, audio-visual devices shall be mounted on back boxes specifically designed for the purpose.

All wiring shall be installed in metal raceway – ½ “or larger. Flexible Steel Conduits shall be used only where approved by NAU-FLS for connection to equipment which is moveable, connections from a close by junction box to lay-in type device in a "T" grid ceiling. The maximum fill ratio of raceway shall be 50% of the NEC maximum fill.

All fire alarm system junction boxes shall be painted red and “J” box covers shall be labeled in bold 1” black decal letters “F/A”.

Inspections and Final Acceptance:

All conduit, boxes, fittings and equipment back boxes shall be inspected by NAU Fire Life Safety. No work can be covered up prior to installation inspection. Inspection request shall be in accordance with Division 1.

At system acceptance the Contractor shall provide all relevant manual(s), Technical/Maintenance manual(s), and accurate map/plan on system component location along with all device(s) identification and address. All system circuits routes and individual circuit identification. The Contractor shall provide Certificate of completion and two (1) copy of the complete system programming disc.

Contractor shall provide three (3) year complete warranty on all system components, programming and installation.

Contractor shall have an in-place support facility with technical staff, spare parts inventory, and all necessary test and diagnostic equipment. Contractor shall provide 4 hour emergency response time.

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Clean Agent systems and Detection and Control

Designer/Installation contractor qualifications:

Installation contractor shall be a factory certified authorized distributor.

System designer – Fire alarm system plans and specifications shall be developed in accordance with NFPA 72, NFPA 2001, by persons who are experienced in the proper design, application, installation, and testing of clean agent fire suppression systems.

System installer – installation personnel shall be supervised (to include conduit, boxes and wiring installation) by persons who are qualified and experienced in the installation, inspection and testing of clean agent fire suppression systems. Qualified personnel shall include, but not limited to, the following:

- (1) Factory trained and certified personnel
- (2) National Institute of Certified in Engineering Technologies – NICET –Fire alarm level II
- (3) Personnel licensed or certified by a State or local authority

System Requirements

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Control, detection and release system shall comply with section 13910

Clean Agent shall designed as total flooding application designed for normally occupied areas.

Each area protected by an alternate automatic fire suppression system shall be protected with a dry pipe pre-action sprinkler system.

Multiple protected hazards shall be independently detected and released.

Each protected hazard shall be provided with standard U.L.-type delay discharge abort.

System shall release with cross zone detection and include pre-discharge warning.

All Detection and Control/Release system junction boxes shall be painted red and "J" box covers shall be labeled in bold 1" black decal letters "F/P".

Signal line circuit wiring shall comply with the NFPA Style "6" requirements.

Notification circuit wiring shall comply with the NFPA Style "Z" requirements.

Inspections and Final Acceptance:

All distribution, actuation piping, conduit, boxes, fittings and equipment back boxes shall be inspected by NAU Fire Life Safety. No work can be covered up prior to installation inspection. Inspection request shall be in accordance with Division 1.

Contractor shall perform piping network flow test (puff test) and enclosure integrity test.

At system acceptance the Contractor shall provide all relevant manual(s), Technical/Maintenance manual(s), and accurate map and AutoCAD/DOS compatible file on system component location along with device identification and address. The Contractor shall provide Certificate of completion and provide two (2) copies of the complete system programming disc and sequence of events.

After the completion of the acceptance test the Contractor shall perform for a period of two (2) years the semi - annual inspection test of the fire system.

Contractor shall provide three (3) year warranty on all system components, programming and installation.

Contractor shall have an in-place support facility with technical staff, spare parts inventory, and all necessary test and diagnostic equipment. Contractor shall provide 4 hour emergency response time.

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Automatic Sprinkler system

Designer/Installation contractor qualifications:

System designer – Sprinkler system plans and specifications shall be developed in accordance with NFPA 13, 13R, by persons who are experienced in the proper design, application, installation, and testing of automatic building fire suppression systems.

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System installer – installation personnel shall be supervised by persons who are qualified and experienced in the installation, inspection and testing of automatic building fire suppression systems. Qualified personnel shall include, but not limited to, the following:

- (1) Personnel licensed or certified by a State or local authority.

System Requirements:

Sprinkler heads shall be located in the center of individual ceiling tiles.

Contractor shall install a double check back flow prevention devices on all wet, dry and pre-action systems.

Inspectors Test valve shall be labeled, provide visible standard flow, and shall remain accessible at all times.

Provide access panels for all hidden valves. Panels shall be labeled to the type of valve accessed from the panel.

Specify drain valves for each low loop of the system. Drain valves shall be piped to the exterior of the building or to a floor sink.

Stand Pipe Systems shall be Class I Manual Wet with system demand provided by Fire Department pumping apparatus.

Inspections and Final Acceptance:

Inspection request shall be in accordance with Division 1

In addition to the inspection requirements in Division 1 – General Requirements; The General Contractor is responsible to contact NAU-FLS with 24 hr notice to visually inspect all underground piping, thrust blocks, fittings and connections. At that time the Contractor shall perform a 200 lb hydro-test and fire main flush.

Sprinkler piping installation shall be visually inspected by NAU-FLS and witness a 200 lb hydro-test on a “completed” floor by floor basis. No piping, hangars and fittings shall be covered prior to the inspection.

All FDC, Stand pipe hose connections shall be provided with approved locking fire department connection caps. NAU Fire Life Safety will provide appropriate manufacture order form.

At system acceptance the Contractor shall provide all relevant manual(s), Technical/Maintenance manual(s), and accurate map/plan indicating all system components, piping, control valves and sprinkler head location.

Contractor shall complete and provide: Contractor’s material and test certificate for underground, and above ground piping. NAU Fire Life Safety shall witness/inspect piping installation, and system flushing and hydrostatic testing.

Contractor shall provide two (2) year warranty on all system equipment and installation.

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Kitchen Hood Fire Suppression Systems.

Restaurant hood suppression systems shall be new Ansul R102 wet chemical suppression systems.

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Designer/Installation contractor qualifications:

Installation contractor shall be a factory certified authorized Ansul distributor.

System designer – Fire suppression system plans and specifications shall be developed in accordance with NFPA 17A by persons who are experienced in the proper design, application, installation, and testing of wet chemical fire suppression systems.

System installer – installation personnel shall be supervised by persons who are qualified and experienced in the installation, inspection and testing of fire alarm systems. Qualified personnel shall include, but not limited to, the following:

- (1) Factory trained and certified personnel
- (2) National Institute of Certified in Engineering Technologies – NICET –Fire alarm level II
- (3) Personnel licensed or certified by a State or local authority

It is the responsibility of the fire suppression Contractor to provide a complete set of the installation plans, specifications and equipment submittals as required in section 13905.

The plans shall include the following:

1. pipe size, length and arrangement of connected piping.
2. Description and location of nozzles.
3. The location and function of detection devices.
4. Operating devices.
5. Auxiliary equipment.
6. Electrical circuitry.

All exposed piping, fittings and conduit shall be chrome or chrome sleeved.

All new distribution piping shall be “flushed during final inspection. Ansul flushing compound shall be used and the “flushing” shall be witnessed by NAU Fire Life Safety.

A complete functional test shall be performed during the final acceptance inspection. This test will include a “puff” test with all nozzles installed.

Contractor shall provide two (2) year warranty on all system equipment and installation.

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Fire Life Safety

All doors for rooms containing air conditioning equipment, fire protection equipment and controls shall be labeled to the type of equipment within.

Assembly occupancies shall have the occupant capacity of the room posted in a conspicuous place near the main entrance/exit of the room.