

AMHERST COLLEGE – FIRE PROTECTION NARRATIVE REPORT

NAME OF BUILDING
Address
Amherst College
Amherst, MA 01002-5000
Date

Building

Addition Alteration Building (new) Demolition Renovation

Fire Detection

Detection (new) Detection (add) Detection (improve)

Fire Suppression

Sprinkler (new) Sprinkler (add) Sprinkler (improve) Kitchen Suppression (add)

In accordance with the requirements of the Massachusetts State Building Code 9th edition (IBC, 2015 edition with Massachusetts Amendments) and Fire Prevention Regulations (527 CMR 1), Amherst College submits the above referenced narrative to outline additions and modifications to and for the Simplex Fire Alarm System.

Introduction

Briefly describe the project and overview of fire protection for the building and the scope of work
(New building, addition, renovation)
(New fire protection system(s), alteration to existing systems)

SECTION 1 Building Description

- Building “Use” Group(s)
- Total ground floor area of the building
- Total area, all floors including basement
- Building Height
- Number of floors above grade
- Number of floors below grade
- Construction Type
- Occupancy(s) within the building
- Hazardous Materials/Processes in building
- Storage over 12’

SECTION 2 Building and Site Access

- Site access for emergency response
- Building access for emergency response
- Key vault and 24-hour contact information

SECTION 3 Applicable Laws, Regulations, and Standards

- **International Building Code (IBC)**
 - Massachusetts State Building Code Amendments 780 CMR – 8th edition

- **NFPA Standards**
 - NFPA 1 – 2012, Massachusetts Comprehensive Fire Code, 527 CMR
 - NFPA 10 – 2007, Portable Fire Extinguishers
 - NFPA 13 – 2013, Installation of Sprinkler Systems
 - NFPA 14 – 2013, Installation of Standpipe Systems
 - NFPA 20 – 2013, Installation of Fire Pumps
 - NFPA 24 – 2010, Fire Service Water Mains
 - NFPA 25 – 2011, Inspection, Testing & Maintenance of Water-Based Fire Protection Systems
 - NFPA 30 – 2008, Flammable and Combustible Liquid Code
 - NFPA 58 – Liquid Petroleum Gas Code
 - NFPA 70 – 2010, National Electrical Code
 - NFPA 72 – 2010, Fire Alarm Code
 - NFPA 92B – 2009, Smoke Management Systems in Malls, Atria and Large Spaces
 - NFPA 96 – 2008, Ventilation and Fire Control for Commercial Cooking Operations
 - NFPA 110 – 2005, Standby for Emergency and Standby Power Systems
 - NFPA 111 – 2005, Stored Electrical Energy Emergency & Standby Power Systems
 - NFPA 750 – 2010, Standard on Water Mist Fire Protection Systems
- **MGL Chapter 148**
 - Section 26G Sprinkler Systems
 - Section 26I Sprinkler Systems, Boarding & Lodging
 - Section 26H Sprinkler Systems, 4 or more dwelling units
- **Massachusetts Architectural Access, 521 CMR**
- **Massachusetts Elevator Regulations, 524 CMR**
- **Massachusetts Fire Prevention Regulations, 527 CMR 1**
- **Massachusetts Gas Code, 248 CMR**
- **International Mechanical Code, 2009 edition**
- **Amherst By-Laws**
 - Key vault
- **Additional Local, State and Federal Requirements**

SECTION 4 Design Responsibilities for Fire Protection Systems

- List the name, address, telephone, facsimile, e-mail for the designer or engineer of records who will prepare the shop drawings and construction documents for each fire protection system

SECTION 5 Fire Protection Systems to be Installed

- List and describe the systems to be installed, the design criteria and the key components of each required and non- required system
- **Fire Hydrants and Water Supply**
 - Location of existing and new hydrants
 - Location and size of public water mains
 - Location and size of private water mains
 - Location of control valves
- **Sprinkler and Standpipe System**
 - Type, hazard class, description and design layout of the sprinkler system(s)
 - Sprinkler system control equipment location(s)
 - Type, description and design layout of the standpipe system
 - Standpipe system hose valve type and location
- **Fire Department Connection(s) type and location**

- **Fire Alarm and Detection**
 - Type, description and design layout of the fire protective signaling system
 - Type, description (total, partial or spot detection) and design layout of the fire detection system
 - Auxiliary functions integrated as part of the fire protective signaling system
- **Fire alarm control equipment location(s)**
- **Type and description of annunciator(s)**
- **Carbon Monoxide Alarms/Sensors**
 - Type, description and layout of the carbon monoxide alarms
- **Gas (Natural and Propane) Alarms/Sensors**
 - Type, description and layout of the gas alarms/sensors
- **Alarm Supervisory System**
 - Type and description of alarm supervisory system
 - Method of transmitting alarm signals to the Fire Department
 - Method of transmitting trouble and supervisory signals
- **Fire Extinguishers**
 - Hazard Class(es)
 - Size and Type of Fire Extinguishers
 - Placement of fire extinguishers
- **Fire Extinguishing Systems**
 - Type, description and design layout of fire extinguishing system(s)
 - Location of controls for the fire extinguishing system(s)
 - Type and description of other functions and features integrated with the fire extinguishing system(s)
- **Smoke Control and Exhaust Systems**
 - Type, description and layout of the smoke control or exhaust system
 - Type, description and location of smoke control system/exhaust systems controls
- **Elevator Operation and Recall**
 - Describe the operation of the elevator as it pertains to Elevator Recall, including Phase I and II
- **Auxiliary Life Safety Systems**
 - Type, description and layout of auxiliary functions and features to be integrated into the fire alarm or fire suppression and protection systems
- **Fire Protection Systems Equipment Room Location**
 - Location of the room(s) in which control systems for fire protection systems are located
 - Marking of the rooms
- **Fire Protection Systems Equipment Identification and Operation Signs**
 - List and describe signage provided to identify controls for each system
 - List and describe operational instructions provided for responders
- **Fire Command Center**
 - Location of fire command center
 - List and describe equipment in the fire command center

- **Emergency power systems**
 - Generator including fuel type and quantity

SECTION 6 Design Methodology

- List and describe the criteria and performance objectives used by the designer for each system

SECTION 7 Special Considerations

- Identify and describe factors used by the designer that deviate from the prescriptive requirements of the codes and standards
- This section should include interpretations, variances, waivers, elements of performance based design

Sequence of Operations

- Describe the operation of the fire protection systems in a non-technical narrative that will provide sufficient information to understand the initiating events and resulting actions. The description shall include the interconnections between building systems

SECTION 8 Testing Criteria and Methods

- Describe the methods to test fire protection systems individually, the interconnection between fire protection systems and the interconnection with other building systems
- **Testing Criteria**
 - In accordance with the requirements of the Building Code 780 CMR 9, the applicable NFPA standards and Amherst College Fire Detection and Suppression Systems Program, a 100% test of the new system (fire alarm and suppression) and at least 20% of the existing devices (if applicable) in the building will be tested by the electrical contractor, sprinkler contractor and SimplexGrinnell representatives in the presence of the owner's representatives (electrical shop supervisor or designee, the office of Environmental Health and Safety, the Project Manager and the Engineer of Record) to verify proper address, operation and notification before the building and/or fire departments are requested for a final inspection.
 - In addition to the fire detection and suppression system testing, the 100% test performed by the contractors, in the presence of the owner will include;
 - Emergency Generator
 - Emergency Lights and Exit Signage
 - Elevator(s) as it pertains to Fire and Medical Service, and power failure systems
 - Testing of the detection devices can be by smoke or magnet in accordance with the requirements of the AHJ and Manufacturer's Specifications, as required.
 - Testing of all pull stations will be by manual pull
 - Testing of sound levels (dB) in all areas of the building, including mechanical rooms, offices and restrooms
 - All fire alarm addresses / zones will be verified at the fire alarm annunciator, panel and Amherst College Police Dispatch Center
 - Normal and Emergency Power will be tested and approved
 - All appropriate "supervisory" and "trouble" conditions will be tested and approved
 - Testing of the fire suppression system (sprinkler, standpipe, fire pumps) will include main drains, sprinkler flows and tampers of both wet and dry systems
 - Testing Documentation and Equipment Required for Evaluation:
 - Manufacturer's Specifications
 - NFPA 13 Inspection Form – Aboveground Sprinkler System
 - NFPA 24 Inspection Form – Underground Piping
 - NFPA 72 Inspection Form – Fire Alarm Record of Completion

- Narrative and Matrix (copies)
- Magnet (Simplex Approved)
- Smoke (Simplex Approved)
- Sound Level Meter
- Portable Radios and Cell Phone

- **Approval Requirements**

- A 100% test of the Fire Detection and/or Fire Suppression System must be performed by the Electrical and Sprinkler Contractor in the presence of the owner and all appropriate representatives before the Amherst Building and/or Fire Department is requested for final inspection.
- The AHJ, in accordance with the requirements of 780 CMR will require copies of the following before a final inspection is performed;
 - Narratives and Matrix
 - License and Picture Identifications for
 - Electricians
 - Sprinkler Fitters
 - Fire Alarm Technicians
 - As-Built Plans (time of receipt is AHJ specified)
 - NFPA 72 Inspection / Testing Form
 - Battery Calculations
 - NFPA 13 Inspection / Testing Form
 - Underground Pipe Testing
 - Sprinkler Pressure Test
 - All appropriate Manufacturer's Specifications for Maintenance and Testing

