

SECTION 01431C FM GLOBAL CRITERIA

PART 1 - GENERAL

- 1.01 Brown University properties are insured with FM Global. All facilities projects and other work at Brown shall comply with FM Global specifications and recommendations where applicable. All materials, specifications, methodologies, and design criteria shall comply with applicable FM Global Loss Prevention Data Sheets.
- 1.02 Facilities work and projects at Brown fall into one of the following three categories:
- A) Work with no impact on building elements of concern to FM Global. Where FM Global Loss Prevention Data Sheets do not apply to the scope of work, no compliance effort is required.
 - B) Work requiring FM Global review for use of approved products, assemblies, and methods. Review packages for FM Global are required. Completed work shall comply with FM Global specifications.
 - C) Significant renovations and new construction projects that receive complete FM Global plans and specifications review, and require project coordination with and field acceptance by FM Global. Close coordination with FM Global is required to ensure compliance with FM Global specifications.
- 1.03 FM Global Plan Review has summarized their services as excerpted below:

Plan Review services are offered by FM Global to help incorporate loss prevention features into the initial planning stages of a project. Submittals of plans shall be addressed to

FM Global
Boston Operations
Attn: Plan Review
500 River Ridge Drive
Norwood, MA 02062

Each transmittal shall clearly identify the account name ("Brown University"), location with address (Project location and address), and contact name and phone number (Project Manager) in case questions arise during the review.

For all projects the following plans should be submitted:

CONSTRUCTION:

1. Site Plans - These should include finished floor elevations, finished grading elevations and details on additions and modifications to the yard mains, control valves and fire hydrants.
2. Construction Drawings- Architectural and structural drawings should be submitted. Along with the basic construction details, these should include finished roof elevations of both new and any adjacent, existing buildings. For "pre-

engineered” metal buildings, complete construction drawings and roof load calculations are required for a thorough review.

ROOFS:

1. **Structural Prints** - These should include information such as drawings of the roof installation, flashing installation, and roof design load (both live and dead load).

2. **Roof Drainage System** - Drawings should show drain sizes, locations with respect to building columns, and the number of drains to be installed. Roof drainage calculations should be submitted proving that the design drainage is adequate for the anticipated rainfall intensity.

3. **Snow Loading Calculations** - When applicable, these should be submitted to ensure that the average snow load due to an unbalanced snow load does not exceed the design live load of the roof.

4. **Wind Uplift Rating** - The uplift rating of the roofing system should be specified to ensure that it is properly designed to withstand the anticipated uplift pressures.

5. **Specific Roof Flashing Details**

6. **Roof Specifications, including:**

- o Materials (Manufacturers, model and size for insulation boards, vapor barriers, adhesives, membranes and any other component of the system.)
- o Roofing System specifications, if approved as a system.
- o Fastening specifications, including the manufacturer’s name, model, and the proposed fastening density.

Re-roofing Projects

All of the above information is also applicable to re-roofing projects. Information such as design load, snow loading, etc. is not only critical if the new roofing system will encroach on the design live load of the roof (i.e., if an existing mechanically fastened single-ply membrane is to be replaced with a ballasted single-ply membrane.)

FM can be contacted to obtain information regarding the anticipated wind uplift pressures, rainfall and snowfall intensities for a specific project.

AUTOMATIC SPRINKLER PROTECTION:

The following are needed to conduct a thorough review of plans for automatic sprinkler systems:

- A) Prints of the proposed automatic sprinkler system
- B) Occupancy layout and commodity description
- C) Hydraulic Calculations
- D) Specifications for the materials that are to be used.
 - Sprinkler heads
 - Sprinkler pipe
 - All valves
 - Any peripheral equipment including tamper alarms, waterflow alarms, etc.
 - Occupancy Details - In order to review submitted plans to ensure adequate protection, accurate occupancy details must be provided. These include, but are

not limited to, materials being stored, storage height, storage arrangement, processes present, etc.

- E) The Contractor's Materials and Test Certificate Form No. 85 should be completed by the installing contractor for all installations and submitted to FM.

Fire Pump/Booster Pump Installations

For all Pump Installations:

1. Prints of the fire pump/booster pump installation.
2. Manufacturer's Cut Sheets for the fire pump, driver, controller, etc.
3. Manufacturer's Specifications for all materials and peripherals.
4. Manufacturer's Certified Bench Curve for the pump.
5. Pump House Design & Layout information including:
 - Location
 - Construction

For all Electric Pump Installations:

1. Single Line Diagram showing the electric feed arrangement to the pump.

ALARM SYSTEMS

FM reviews plans for fire alarm system installations to ensure that the system provides the required level of detection in the area of installation and that all equipment is FM approved either as a system or on a component basis. The following information is necessary in order to review alarm system plans:

1. **Manufacturer's Information** including name and model number(s):
 - For the entire system, if applicable
 - For all system components and options, if applicable.
2. **Manufacturer's Specifications** for all equipment.
3. **Prints showing:**
 - System component layout
 - Control panel wiring
 - Battery backup, if required

FUEL-FIRED EQUIPMENT

FM reviews plans for fuel-fired equipment installations to ensure that all necessary controls and safeguards are included in the installation, all equipment used is FM approved, and that all safeguards are configured and wired for proper sequence of operation. The following information is needed to conduct a thorough review of plans involving fuel-fired equipment installations:

1. Fuel Train Piping Diagram
2. Electrical Ladder Diagram or Controller Program Logic
3. Equipment and Materials List, including manufacturers name and model number for all equipment
4. Safety Ventilation Calculations for ovens
 - Direct fired ovens
 - Ovens processing materials containing flammable solvents.
5. Satisfactory completion and submittal of the Manufacturer's Application for Acceptance of Oven/Furnace Installations Form No.69 or the Installer's

Application for Acceptance - Automatic Lighted Boiler Safety Combustion Control System Form No.82, which is used for boiler installations. (See Appendix B for examples of the Applications for Acceptance for Oven/Furnace Installations and Boiler Installations).

END OF SECTION