FM Global Plan Review Basic Requirements

A quick reference guide

FM Global's plan review process is there to help our clients protect their facilities during the design phase for new buildings or remodels. Table 1 gives common occupancy design requirements used in the Maricopa County Community College School District. More design requirements can be found using FM Global Data Sheets. A list of the most useful data sheets is provided below.

Occupancy	Denisty (gpm/sq. ft.)	Demand Area (sq. ft.)	Hose requirements (gpm)
Auditoriums <35 ft. high ceiling	0.15	2500	500
Auditoriums >35 ft., <60 ft. high ceiling	0.15	3000	500
Offices	0.10	1500	250
Classrooms	0.10	1500	250
Parking Structures	0.15	2500	500
Central plant and Utility Areas	0.20	3000	500
Laboratories	0.15	1500	250
Kitchens; Libraries; Restaurants	0.10	1500	250
Vehicle repair garages (fueled vehicles)	0.25	3000	250

Table 1: Occupancy design requirements for CMDA sprinklers.

Specifics for the equipment:

- Sprinkler heads should be K 5.6 or greater.
- Sprinkler control valves for the risers should be accessible during a fire, this usually means accessible from outside the building or in a stair well.
- There should be a riser for each 52,000 sq. ft. area (for non-storage occupancies)
- The drawings and specifications should require that all equipment be FM Approved **and** UL Listed. The drawings and specifications should also require the installation meet FM Global standards. Approved equipment is found in the FM Global's Approval Guide, now online, www.approvalguide.com.

Storage Specifications:

Storage rooms less than 200 sq. ft. do not require increased fire protection. Larger storage areas require higher automatic sprinkler design requirements, found in FM Global Data Sheet 8-9. The design requirements depend on what is being stored, the storage arrangement, and the storage height. Storage classifications are found in FM Global Data Sheet 8-1. Once the classification is known, use Data Sheet 8-9 to determine design densities and areas based on storage arrangement and storage height. Please contact FM Global with questions or help in determining these design requirements. Our standards (Data Sheets) are available online at www.fmglobal.com.

FM Global Site Inspections:

An FM Global consultant engineer will typically visit the site after the installation or construction is complete to ensure the system was installed according to the drawings, and FM Global standards, as well as to accept the installation. Our engineers may visit a site during construction to ensure the drawings, and our standards are being followed during this critical phase as well; however, this is not always necessary.

Plan Review Submittals Address:
FM Global
Plan Review Department
ATTN: Sarah Gerdes
6320 E. Canoga Ave Suite 1100
Woodland Hills, CA 91367

FM Global Contact Information:
Sarah Gerdes
Consultant Engineer
Cell: 480-710-6273
Email: Sarah.Gerdes@fmglobal.com

References:
Data Sheet 3-26, *Fire Protection Water Demand For Nonstorage Sprinklered Properties*
Data Sheet 2-8N, *NFPA 13 Standard For The Installation Of Sprinkler Systems (1996 Edition)*
Data Sheet 8-1, *Commodity Classification*
Data Sheet 8-9, *Storage of Class 1,2,3,4 and Plastic Commodities*

FM's Suggested additions and edits to Consultant Standard Fire Protection Specification

Please review the follow and edit your standard fire sprinkler specification to include these items. The red is wording that may be typical additions to standard language:

Part 1- General Requirements:

Performance requirements:
The Sprinkler system design shall be per the applicable local codes and FM Global standards, and be approved by the authorities having jurisdiction as well as FM Global, the Owner's property insurance carrier.

Submittals:
Please include the requirement for submittal of the drawings and hydraulic calculations to the owner, AHJ and FM Global. Include a requirement for electronic copies of all final drawings & calculations for the Owner's records.

Quality Assurance:
Include the following requirements:

- Materials and details of the installation shall conform to FM Global standards, FM Global's Data Sheets and Approval Guide, available from FM Global or the District's website at http://www.maricopa.edu/facilitiesplanning/contcons/index.htm
- All equipment shall be UL Listed and FM Approved.

Part 2- Products:

All equipment should be FM Approved equipment as appropriate. Be sure to note this as "UL Listed **and** FM Approved", not or.

Part 3- Execution:

Add a specific requirement:
"Deviations from approved working plans for piping require written approval from authorities having jurisdiction and owner's insurance carrier. File written approval with Architect and Owner before deviating from approved working plans."

Add to each section that references an NFPA standard for the installation, that the work shall comply with the requirements in NFPA-13 and FM Data Sheet 2-8N"

At the Piping Material Schedule, FM typically sees all piping 2 in. and smaller being Schedule 40 and all larger pipe as Schedule 10. With the corrosion problems (leaks, MIC) in the Phoenix area, more FM clients now using Schedule 40 throughout their systems.