



# Property Risk Consulting Guidelines

## HYDRAULICALLY DESIGNED WATER-BASED SYSTEMS

This section identifies primary duties of AXA XL Risk Consulting, the sprinkler designer, the sprinkler contractor and the system purchaser for hydraulically designed sprinkler, water-spray and foam-water installations. Satisfying these individual duties will help assure acceptability of design and installation. It will also avoid duplication of effort and permit the prompt review of plans and calculations.

### AXA XL RISK CONSULTING

- Establishes design specifications.
  - Identifies details of the specific occupancy.
  - Specifies the density and area of application needed for the specific occupancy or the number of heads and pressure for ESFR applications.
  - Determines the need for in-rack protection, maximum reliability or other special supply and isolation valve arrangements, and the amount of water needed for hose stream allowances.
  - Determines if system demands must be met simultaneously.
- Reviews plans and supporting data.
  - Verifies that installation meets or exceeds NFPA or other equivalent national standard of requirements as interpreted by AXA XL Risk Consulting.
  - Verifies application of AXA XL Risk Consulting sprinkler system specifications by reviewing calculations for the most hydraulically demanding area. For closed-head systems, verifies the hydraulically most demanding rectangular area having a dimension parallel to the branch lines equal to or greater than 1.4 times the square root of the area of operation. Foam-water systems require an additional calculation at the area nearest the riser to determine the maximum expected system flow rate. This flow rate determines how long the foam concentrate will last.
  - Verifies water supply information, including seasonal fluctuations in pressure, volume or both.
  - Checks system demand at the base of the riser.
  - Verifies water supply can meet both system(s) and hose demand.
  - Sends comments to submitter with copies to insured and producer.
  - Periodically audits computer based designed calculations from a given contractor.
- Reviews completed installation.

- Verifies installation with AXA XL Risk Consulting reviewed contractor's drawing, including layout, piping specifications and nozzle placement. Deviation from these drawings may require recalculation or repiping to the originally accepted design.
- Verifies presence of placard indicating location protected and the basis of design and the demand at the base of the riser.
- Verifies hydrostatic test and system flushing; witnesses acceptance tests where appropriate.
- Removes recommendation from Loss Prevention Survey.
- Acknowledges acceptance of the system.

### **SPRINKLER DESIGNER**

- Designs a fire protection system that:
  - Provides the level of protection specified by AXA XL Risk Consulting.
  - Has a pressure/flow demand that is within the capability of existing or proposed water supplies, simultaneous with the hose demands specified by AXA XL Risk Consulting.
  - Meets the design and installation requirements of NFPA standards as interpreted by AXA XL Risk Consulting.
  - Meets the requirements of the local Authorities Having Jurisdiction (AHJ).
- Prepares installation drawings and hydraulic calculation sheets for review and acceptance by AXA XL Risk Consulting.
- Corrects known errors in design or installation.

### **SPRINKLER INSTALLER**

- Installs protection in accordance with plans accepted by AXA XL Risk Consulting.
- Installs protection in accordance with the requirements of the local AHJ.
- Notifies AXA XL Risk Consulting and system purchaser of time and date testing will be performed.
- Submits properly signed and witnessed "Contractor's Test Certificates" following:
  - Flushing of underground before connecting water-based protection systems,
  - Hydrostatic testing of all newly installed underground and interior piping in accordance with applicable NFPA Standards,
  - Conducting operating tests on all newly installed equipment to verify successful performance.

### **SYSTEM PURCHASER**

- Furnishes occupancy details to AXA XL Risk Consulting for development protection specifications.
- Ensures protection meets the requirements of the local AHJ.
- Contracts specific protection, making design and installation subject to AXA XL Risk Consulting review and acceptance.
- Handles impairments to existing protection in accordance with PRC.1.1.0.
- Witnesses all flushing, hydrostatic and operational tests performed by the installing contractors before the system is accepted.
- Informs AXA XL Risk Consulting of installation and preliminary testing completion so on-site review can be conducted.
- Keeps "as-built" drawings on file.

- Submits subsequently proposed changes in occupancy to AXA XL Risk Consulting for review to establish whether or not a change is necessary in the protection system.