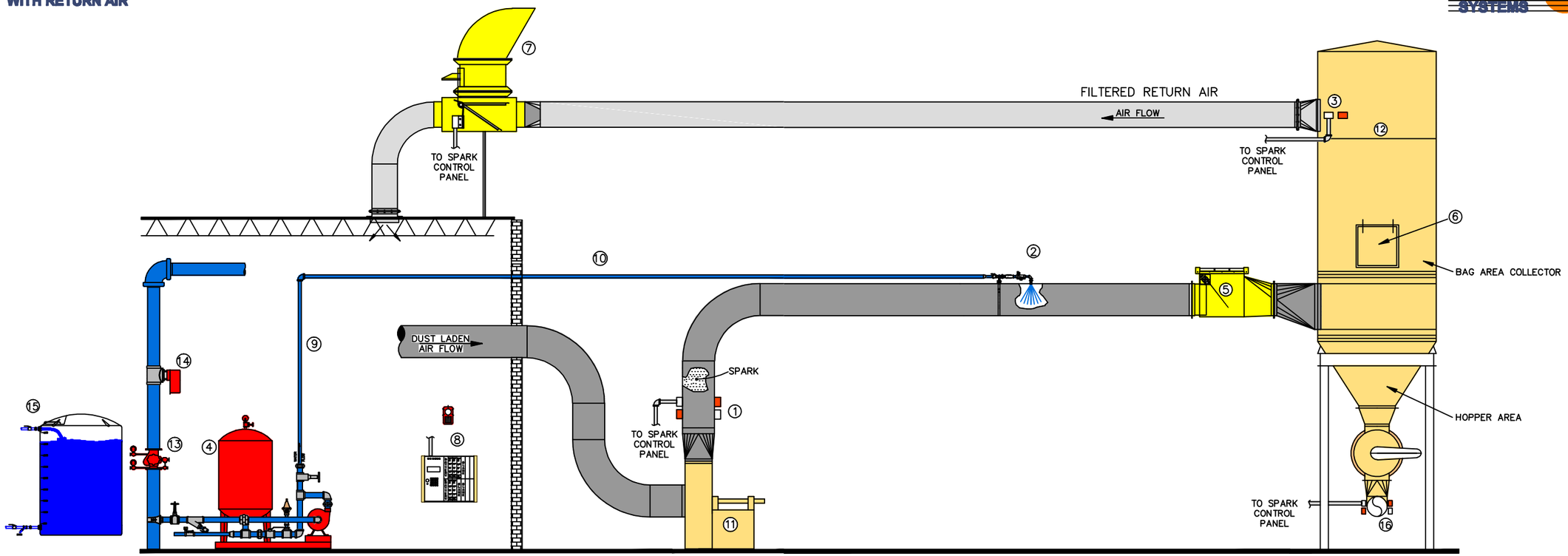
TYPICAL SPARK DETECTION WITH RETURN AIR

FIRE MANAGEMENT SYSTEMS



1. SPARK Detectors / Test Lights
   Detectors monitor the interior of the ductwork. They have a 90° cone of vision allowing two sensors to cover up to a 79" duct. Test lights are recommended to give through the lens testing and verification of operation, both are easily removed for cleaning.

2. WATER Suppression Assembly
   This assembly injects an atomized water spray into the duct when receiving the signal from the control panel with complete annunciation provided by a pressure switch. A service valve along with a wye strainer and flush valve completes the assembly.

3. SECONDARY Spark Detection
   This detection is sometimes required to verify suppression, release other types of suppression (water deluge, CO_2, etc.), release HiSpeed Abort Gates or provide process shutdown.

4. WATER Booster Pump
   This booster pump assembly provides the necessary pressure for the suppression assembly if the plant's water supply does not meet hydraulically calculated design.

5. BACK Blast Damper
   The damper prevents the pressure and fire of an explosion from traveling back down the duct into the plant and provides a pressure release panel (explosion vent) which operates at approximately 1.5–2 PSI.

6. EXPLOSION Venting
   This is required on the filter and must follow NFPA 68 guidelines for proper sizing . These can be provided for ductwork, filters, storage bins, baghouses, cyclones, etc.

7. HIGH Speed Abort Gates
   In case of dust explosion in the conveying duct, Hi-Speed Abort Gates isolate and divert fire and shock waves out into the atmosphere. Personnel and Dust Collection equipment are protected. Abort Gates are normally positioned at baghouse inlets or filtered air return points.

8. SPARK Detection Control Panel
   Designed to receive input signals from numerous types of detectors, processing the information for release of suppression, process shutdown, and Abort Gate Signaling Release. Provides data gathering, annunciation signaling, testing of field devices, visual and audio signals, and provides 24 hour battery standby.

9. WATER Supply to Suppression Assembly
   This water supply is a network of hydraulically calculated piping, which provides water for suppression and is required to meet NFPA standards.

10. HEAT Tape and Insulation Blankets
    In all locations where temperatures fall below 35°F suppression piping and spray assembly is required to be protected from freezing, self-regulating heat tape must be designed along with insulation to provide protection. Insulation blankets are provided so the suppression assembly can be serviced easily.

11. MATERIAL Handling Fan
    These fans are used to transport dust laden air from your process to the dust filter or storage bin.

12. DUST Collection Filter
    These filters extract the dust from the air and allow clean air to be returned into the building.

13. DUST Collection Sprinkler or Deluge Protection
    This process provides structural protection to the filter itself. We recommend an anti-freeze loop or deluge of the filter with water being located as close to the filter as possible. This reduces the possibility of compressed air stirring the dust inside the collector before the water has reached the fire. This action greatly reduces the possibility of an explosion.

14. SPRINKLER Flow Switch
    This flow switch is located in the supply line of the system serving the Dust Collectors and is tied to the emergency stop on the fans. With the built-in time delay the water has a chance to saturate the filter before the fans are shutdown and the dust from the bags drops into suspension and cross the (LEL) Lower Explosion Limit.

15. WATER Storage Tank
    Optional water storage tank available when only well water is accessible. Sizing based on hazard requirements.

16. RELAY Line
    Relay line carrying material to storage bins or truck loading system must be protected to ensure fire from the collector is not transported to silo's, storage bins, truck dumps etc.