



WARRINGTON TOWNSHIP FIRE MARSHAL'S OFFICE

3400 Pickertown Road ♦ Chalfont, Pa 18914

Phone# 215-997-7501*Fax# 215-997-7539

RESIDENTIAL FIRE SPRINKLER SYSTEMS

Plan Submittal and Inspection Requirements

All residential fire sprinkler systems within the Township of Warrington shall meet all the applicable sections of the Warrington Township Fire Code, NFPA 13, 2007 edition, NFPA 13D, 2007 edition and NFPA 13R, 2007 edition. Residential Fire Sprinkler Systems are required for NFPA 13F:

1. All new residential structures;
2. Any combination of additions, alterations, or repairs to existing structures, affecting more than 50% of the existing floor area;
3. All fire sprinkler systems shall be designed and installed by a registered and approved Warrington Township Fire Protection Contractor.

Submittal Requirements

All residential fire sprinkler system submittals shall include:

- Two (2) sets of plans (**Signed and Sealed**) that comply with the Design and Plan Requirements of this standard.
- Two (2) sets of hydraulic calculations (**Signed and Sealed**) that comply with the Hydraulic Calculation Requirements of this standard.
- Two (2) sets of manufacturers' material information sheets for the sprinkler heads, piping, horn, and strobe device, flow switch, hangers, pressure reducing valves, and back flow preventers.
- A completed and signed Warrington Township Permit Application.
- Payment is not required until the time of permit issuance; however, you may pay by check at the time of submittal. Upon permit issuance, the office will notify the applicant of approval and permit costs. Permit's can be redeemed at the Warrington Permits Office at 3400 Pickertown Road and payment can be made with cash, check or credit card. Checks should be made payable to "Warrington Township".

NOTE: Failure to provide all of the requested information will result in unnecessary delays in the plan review process and application will be returned.

Approval of Plans

- A) The approved permit application entitles the applicant to one (1) hydrostatic/ overhead piping inspection and one (1) final fire sprinkler inspection. Additional fees will be charged for additional inspections and re-inspection fees.
- B) It is the installer's responsibility to perform sufficient pre-inspection testing to ensure operational integrity and reliability of the system in order to avoid delays at the time of inspection.

Design Requirements

Design the one and two family dwellings fire sprinkler systems per current edition of NFPA 13D. The garage exception does not apply. The following detailed requirements shall also apply:

- A) Sprinklers are required in all areas of the structure including:
 - 1) Attached garage
 - 2) Attic Spaces (as described below – if habitable)
 - 3) Crawl Spaces (as described below)
 - 4) Closets (as described below)
 - 5) Under combustible balconies
 - 6) Under steps to basements that have storage space greater than 21 square feet. Underside steps to be sheet rocked.
- B) All heads within the living areas are to be quick or fast response type and listed for residential occupancies.
- C) Sprinklers in the garage shall be spaced at a maximum of 130 square feet per each sprinkler head.
- D) Garages and small enclosures containing heat-producing devices (i.e. furnaces, hot water heater, etc.) may be standard type with intermediate temperature rating within the vicinity of the hazard.
- E) Only listed and approved devices and materials shall be used. CPVC fire sprinkler pipe may be used. All materials shall be installed per their listing requirements. CPVC piping is acceptable for use in a garage when it is installed in the following manner;
 - 1) The piping is installed above a smooth flat horizontal ceiling.
 - 2) The entire ceiling and all the walls are covered with a minimum of 5/8 inch fire rated gypsum board.
- F) Provide horn or bell for alarm activation. Alarm device must be heard in **ALL** areas of the structure to meet code. Depending on the size of the structure, multiple alarm devices may be required. Contractors must provide the manufacturers' information sheets indicating the device being used is approved for its intended use.
- G) Sprinklers are required in all closets exceeding twenty-one square feet. Linen closets or any closet with permanently fixed, full depth shelving utilizing the entire height of the closet should not exceed Twenty-one (21) square feet.
- H) A skylight having dimensions of or greater than four (4) feet by eight (8) feet with a depth of twelve (12) inches must be sprinkler protected with an intermediate temperature rated sprinkler.

Plan Submittal Requirement Checklist

A typical residential fire sprinkler plan submittal shall include the following: Check off completed items. Failure to provide the required information will result in the delay of your plan review and application will be returned.

- A complete set of piping plans drawn to scale showing all sprinkler head locations (use walls as dimensional reference) and room descriptions.
- Indicate the type of piping being used in all areas, (system piping, riser piping, and underground piping).
- Provide all pipe sizing and lengths in all areas (system piping, riser piping and underground piping).

- Note any sloped or special ceilings.
- Note any exposed beams, lighting fixtures or other ceiling obstructions to the sprinkler heads.
- Show the attic access door and pilot sprinkler head above.
- Show any attic or crawl space areas that are designed for storage and provide sprinkler coverage for those areas.
- Indicate on the plans all heat producing zones.
- Specify the manufacturer of the sprinkler head, orifice size and temperature rating. Use residential sprinkler heads in habitable spaces.
- Provide hanger details showing all components and attachment devices.
- Provide a system riser detail showing all valves and devices (no shut-off devices shall be installed on the system side).
- Show the location of all horn or bell devices.
- Provide the site plan, drawn to scale; showing the underground pipe size, location, water meter size and connection point to the city main.
- Provide a building cross section showing sprinkler system components and building construction.
- Provide all necessary information and details so a comprehensive plan review may be performed.

Hydraulic Calculation Requirement Checklist

*A typical residential fire sprinkler plans submittal shall include the following: Check off completed items. **Failure to provide the required information will result in the delay of your plan review.***

- Outline the calculation areas on the plans.
- Calculations are required for the two most hydraulically demanding heads within a compartment (not applicable for additions as described above).
 - o Provide a 15% safety margin
 - o Provide an additional 10-PSI deduction to the calculations to accommodate water system pressure fluctuations.
- Indicate all hydraulic reference points on the plans.
- Indicate the water meter size on the plan and include the appropriate pressure drop in the calculations.
- Provide water flow data and the source of information on the plan. Provide a copy of **written water flow information** from the Warrington Township Water and Sewer. Verbal verification is not accepted.
- The design contractor is responsible to ensure the accuracy of the water flow information.

Inspection Requirements

Failure to comply with the Inspection Requirements will result in the inspection not being completed and a reinspection fee charged. Any inspections in addition to the two (2) inspections allowed by permit, will be charged for the additional inspections. All inspections shall be scheduled 48 hours in advance. Please call the Warrington Township Fire Marshal's Office at 215 – 997 - 7501, to schedule all inspections.

- A) Install product according to manufacture installation information and requirements.
 - 1. **Air or Compressed gas must never be used for pressure testing**
- B) Approved plans and permit shall remain on site for any inspection
- C) A hydrostatic pressure test in accordance with NFPA 13 shall be performed and witnessed by the Warrington Township Fire Marshal's Office. All piping and attached appurtenances subjected to the system working pressure shall be hydrostatically tested. Piping shall be hydrostatically tested. CPVC piping shall be tested in accordance with the manufactures recommendations. The system shall maintain that pressure without loss for two hours.
 - 1. Pressure testing is to be performed with plugs in place of water sprinkler heads. After a successful test, plugs are to be changed and replaced with required and approved sprinkler heads.
- D) No pipe shall be covered or concealed prior to an overhead piping and hydrostatic test inspection. Any covered and concealed piping shall be made visible for the inspection.
- E) Spare sprinkler heads, signage, sprinkler head box, and wrench shall be provided and installed prior to inspection.
- F) A sign made of a durable weather resistant material shall be affixed to the main fire sprinkler or the domestic water supply valve. It shall state in a minimum of 1/4-inch letters that contrast with the background, "WARNING - the water system for this home supplies a fire sprinkler system that depends on certain flows and pressures being available to fight a fire. Devices that restrict the flow or decrease the pressure such as water softeners shall not be added to this system without a review of the fire sprinkler system by a fire protection specialist. DO NOT REMOVE THIS SIGN."

Helpful Resources

- A) For a list of design firms, contractors, and material suppliers that are registered with the Township please contact the Warrington Township Permits Office at 215-997-7501.
- B) For design purposes, water supply information is available from Warrington Township Water and Sewer Department 215-343-1800.
- C) In the event that the existing water meter is insufficient (size and flow capacity) as determined by system demand, Warrington Township Water and Sewer Department will supply a larger water meter as required.
- D) A sign made of a durable material is to be posted at the sprinkler control riser advising the homeowner of the operations and maintenance of this life safety device.
- E) A 300-PSI pressure gauge is required to be installed on all systems.
- F) The use of any anti-freeze system within Warrington Township will require a letter of justification by a Pennsylvania Registered Design Professional proficient in fire protection.
- G) No work is permitted to start until a permit is issued.
- H) The contractor is required to contact the permits office 2-4 days prior to needed inspection. If the work will not be ready for inspection the contractor must call to cancel. Otherwise, re-inspection fees will be charged prior to any further inspections are performed.
- I) Approved plans and specifications must be kept on job site.
- J) All fire sprinkler piping must be protected from freezing. Plans must indicate method and details for protection.
- K) Flow switch must be installed and approved for residential use.