

City of Plano



Fire - Rescue

Automatic Sprinkler Plan Submittal Guidelines

November 2016

Plan Submittal Guidelines are provided based on the 2015 International Fire Code, Policies, and Local Amendments. For additional information see our web site at www.planofire.org

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Automatic Fire Sprinkler System Plan Submittal Guidelines For Plano Fire Rescue

The Fire Department desires to assist its customers in the understanding of our submittal policy, procedure, and application process to achieve first-submittal approvals.

These guidelines:

- Are intended to assist in the preparation and submittal of Automatic Fire Sprinkler System plans for installation in the City of Plano.
- Contain pertinent information relating to the City of Plano adopted codes.
- Are not, however, to be interpreted as containing all data required for proper system design and/or approval.

The **Submitting Contractor** is responsible for complying with all locally adopted codes including the International Codes with local amendments.

These Guideline sections contain information related to:

- **General**
 - Fees (Automatic Sprinkler Systems only)
 - Policies
 - Codes, and Local Amendments (Automatic Sprinkler Sections Only)
- **Fire Sprinkler Systems Plan Review Application**
- **Requirements**
 - Automatic Sprinkler System Requirements
 - Minimum Sprinkler Drawing Requirements
 - Submittal Packet Requirements

General

Fire Sprinkler System Fees

The general contractor normally pays for initial permit fees.

- **Exception:** When the fire-sprinkler contractor is the only contractor working on the site, the following fee applies:

Fire Plan check Fee	
1-100,000 square feet	\$0.035 per square foot of building area. (min. \$60.00)
100,001-300,000 square feet	\$3,500 for the first 100,000 square feet, plus an additional \$0.017 for each additional square foot or fraction thereof.
300,001+ square feet	\$6,900 for the first 300,000 square feet, plus \$0.01 for each additional square foot or fraction thereof.
Fire Protection System work (When Fire Protection Contractor is only contractor on site.)	½ plan check fee (above) (min. \$100.00)
Re-stamp, Lost Plans or Addendum to Project	\$30.00 per hour
After Hours Inspections	\$75.00 per hour (min. \$150)
Same Day New Construction Inspection (See Policy)	\$75.00 per hour (min. \$150)
Expedited Plan Review (See Policy)	\$125

Polices

To provide a smooth and seamless process for building plan review and acceptance testing, all fire-protection plans must be **submitted prior to the general contractor receiving a framing inspection.**

The Fire Department's goal is to provide a *complete and accurate review in the shortest possible time.* We will strive to accommodate plan review requests within 10 working days for the first submittals, and 5 working days for interior finishes (less than 20 sprinklers), resubmittals, and undergrounds.

- Plans shall not be submitted until the contractor has a confirmed contract to install a system.
- Inspections above ceilings:
 - All inspections shall be completed before the ceiling is closed.
 - Hydrostatic test can be conducted as a partial inspection.
 - The Building Inspection Department will issue a release to close the ceiling when all above ceiling inspections are complete. The completion of a hydro or visual does not automatically give approval to cover the ceiling.
- High pile storage **under** 12,000 square feet:
 - Show commodity, storage height, etc. used to design the system.
 - Rack storage plan required prior to sprinkler plan approval.
- High pile storage **over** 12,000 square feet:
 - Show commodity, storage height, etc. used to design the system.
 - Rack storage plan required prior to sprinkler plan approval.
 - Smoke and heat vents shall be shown as an overlay to the sprinkler plans. This insures that sprinklers are not located in the vent cavity.

EXPEDITED PLAN REVIEW AND SAME DAY INSPECTION SERVICES

Scope of Program:

Effective the week of February 1, 2015, the City of Plano Fire Department will begin a same day plan review and inspection program for construction projects. The plan review and inspections will be completed and a fee assessed as the schedule allows. Same day requests will be processed on a first come first served basis until the schedule is full.

Days and Hours of Operation:

Same day plan review service

Available from 8:00 am until 11:00 am Monday thru Friday.

Same day inspection service

Will be scheduled from 1:30 pm to 5:00 pm with one hour meeting times.

Must be requested by 11:00 am by walk-in or by calling our inspection line at 972-941-7161.

Submittal Requirements:

The plans submittal requirements are the same as called out in our plan submittal guidebook and must include all information and scope for the entire permit as pulled through the Building Inspections Department. At a minimum the following information is needed:

- A completed Fire Department Submittal form.
- Three sets of rolled plans (24 – inch x 36 – inch) and one submittal/specification book.
- Fire alarm or sprinkler calculations as needed. Fire alarm plans must include battery calculations and voltage drop calculations for the effected circuit.

The plans will be processed in the order they are received on a first come – first served basis.

If, at any point in the review, the plan reviewer determines that the project requires information / approval from another department, the project will be kept for review within our typical plan review turn around times without assessing the same day review fee.

Types of Plans allowed for review:

- Underground fire sprinkler supply piping.
- Automatic fire sprinkler and fire alarm plans for remodel and interior finish permits for 50 sprinkler heads or 40 fire alarm devices maximum or 10,000 square feet maximum with no change in use.
- Fire sprinkler monitoring plans.
- Above ground fuel tanks 1,000 gallons or less
- Above ground propane tanks.

Types of Inspections allowed for Same Day Inspections:

- Fire Sprinkler Hydrostatic Test
- Fire Sprinkler Component Review
- Fire Sprinkler Visual Inspection
- Fire Sprinkler Insulation Inspection
- Fire Sprinkler Dry System Trip
- Fire Sprinkler Pre-action System Trip
- Fire Sprinkler FD Backflow Addition
- Fire Pump
- Underground Embedment
- Underground Flush
- Underground Hydrostatic Test
- Alternate Agent System
- Fixed Extinguishing System / Hood
- Knox Box Keys
- Fire Alarm Final, Fire Alarm Central Station Monitoring
- Fire Alarm Elevator Recall
- Underground Storage Tank Final, Pressure Test, Product Line Pressure, Strapping, Vapor Recovery Pressure, 2nd Line Pressure
- Flammable Liquid Tank
- High Piled Storage
- LPG Tank
- Materials Storage
- Smoke Control System / Stair Pressurization
- Gated Fire Lane Access
- In-home Day Care
- Fire Department Final Inspection

Fee's:

An expedited plan review fee of \$125 will be added to the construction permit for this requested service. This additional fee will be due regardless if submittals are approved or not approved.

A same day inspection fee of \$75 per hour (minimum \$150) will be added to the construction permit for this requested service. The additional fee will be due regardless if inspection is approved or disapproved.

“EXPEDITE”

Plano Fire Department Plan Review Submittal Form

Permit Number: **Required**

Time: _____

1st Submittal Date _____

Resubmittal Date _____

Project Name _____

Project Address _____

Place an “X” by Plan Type

- ___ **Underground** Fire Sprinkler supply piping.
- ___ **Automatic Fire Sprinkler Plans** for remodel and interior finish permits for 50 sprinkler heads maximum or 10,000 square feet maximum with no change in use.
- ___ **Fire Alarm Plans**- remodel and interior finish permits for 40 fire alarm devices maximum or 10,000 square feet maximum with no change in use.
- ___ **Fire Sprinkler Monitoring Plans.**
- ___ Above ground **Fuel Tanks** 1,000 gallons or less.
- ___ Above ground **Propane Tanks.**

****Note: “Only Plans within Criteria above will be Accepted as EXPEDITED.”**

Submitting Contractor:

Company Name _____

Person to Contact _____ Phone Number _____

Requestor’s - Fee for EXPEDITE Service is \$125 per Submittal and Permit.

Name (Printed) _____ Signature _____

Note: After the plan reviewer calls you to let you know that your plans have been reviewed and are ready for pick-up, then call or go to Building Inspections Department located at Municipal Center-1520 K Avenue, Plano, TX 75074, (972-941-5951) to pay for this Expedited Plan Review fee.

Submittal Guidelines:

- ✓ Completed Submittal Form (with submittals & resubmittals),
- ✓ (3) Sets of rolled Plans (typically 24” x 36”) and (1) Submittal/Specification Book
- ✓ Fire Alarm Plans must include Complete Battery Calculations & Voltage Drop Calculations for the Effected Circuit.
- To File Electronically:**
- ✓ **Electronic Complete Information on CD & (1) Blank CD or Thumb Drive for Reviewer’s mark-ups and (1) set of Rolled plans.**
- ✓ **On CD, make sure the file names are appropriate for identification and review of the file-**
- ✓ **[Please use this format: Address, Permit #, Project Name, Brief Description-(Sprinkler or Fire Alarm) Blueprint]**
- ✓ Contact person will be notified upon completion of plan review.

FIRE DEPARTMENT - OFFICE USE ONLY

A ___ R ___ Working Days: _____ Reviewed By: _____ Date: _____

Fire Protection Backflow Prevention

New Fire Sprinkler Systems:

All new fire sprinkler systems installed in the City of Plano will require backflow prevention.

Existing Building Sprinkler Systems:

Interior finish projects **exceeding 10,000 square feet or affecting 50 or more sprinkler heads** will require the existing building to be equipped with a new backflow preventer as approved by the Utility Operations Department.

A thorough hydraulic analysis, including plans, hydraulic analysis, revised hydraulic calculations, new fire flow data, and all necessary system modifications to accommodate the additional friction loss will need to be provided for existing systems being retrofit with a backflow preventer.

The existing system design will need to meet the safety factor that the system was built under as shown below. New areas of a building or changes to the existing design to a new hazard will need to meet the current sprinkler design requirements.

Existing System Safety Factor:

- Prior to the 1997 Uniform Fire Code (3-28-1998) systems will need a 10 % safety factor is required.
- Under the 1997 Uniform Fire Code (3-28-1998 to 9-10-2001) a 5 psi safety factor is required.
- Since the 2000 International Fire Code adoption (9-10-2001) a 10 psi safety factor is required.

All backflow assemblies shall be located inside of the building. Adequate room shall be accounted for and shown on the approved plans.

All backflow assemblies must be capable of being monitored electronically or locked in the full and open position.

Backflow assemblies must also be listed for use with fire protection systems.

All Fire Sprinkler Plan Submittals:

Must include a backflow prevention statement stating the make and model of the existing backflow preventer provided for the buildings fire sprinkler systems or shall state that an existing backflow preventer is not provided for the main building fire sprinkler systems.

For additional information, contact the City of Plano Utility Operations department at 972-769-4160.

Protection of Fire Sprinkler Piping From Inclement Weather

Purpose: This procedure defines the Plano Fire Department's role in the protection of fire sprinkler systems from freezing conditions.

Policy: The Plano Fire Department will follow and enforce the rules of the NFPA for the proper protection of sprinklered buildings. Protection from freezing conditions shall be the responsibility of the property owner.

Responsibility:

- The owner shall be responsible for maintaining adequate heat as required by the NFPA.
- The designer shall provide a note stating that adequate heat is being provided in all areas required by NFPA.
- The designer shall provide details of insulation being provided, chases, heat trace, or heat envelope design when pipe is located in an area that will not maintain 40 degrees F (exception: systems allowed to be in unheated areas such as dry systems or conditions shown below.)

Guidelines: The Plano Fire Department under the direction of the NFPA will monitor the building for compliance per the NFPA code. Conditions requiring the use of this policy involve wet pipe sprinkler systems and are as follows:

- **Shell building-** buildings built without a tenant. The building does not have a permanent heat source. The heat source will be provided at tenant finish out. Until the first tenant is in place, the sprinkler system may be drained and placed out of service.
- **Tenant Finish-**when the first tenant is in place and prior to freezing conditions (temperatures below 40 degrees Fahrenheit), the tenant and all remaining spaces must be provided with heat. The heat shall be sufficient to maintain the fire sprinkler pipe above 40 degrees. Should the system freeze due to inadequate heat, the building will be closed until the sprinkler system is repaired and adequate heat is provided
- **Vacated existing buildings-** If an existing building is vacated and the heat is not maintained to the structure, all combustibles shall be removed and the sprinkler system drained prior to heat being removed or disconnected from the structure.

It is the owner's responsibility to maintain the fire sprinkler system as designed and installed. The fire department will inspect for proper installation of the sprinkler system. The presence or absence of heat is not part of the inspection required or conducted by the fire department. Proper installation of heat shall be the responsibility of the owner and the mechanical design team.

Policy for Water-flow Detectors and Control Valves

Plano Fire Department

As an alternate to Section 903.4 and Section 903.4.3 of the 2015 International Fire Code Amendments, systems installed in accordance with NFPA 13 R shall be allowed to provide water flow detectors and floor control valves as outlined below:

- 4 Story 13R Systems may include 2 floors with a maximum of 52,000 square feet per water flow detector and floor control valve. Monitoring panel must annunciate which floors are included in the zone or a placard must be placed on the monitoring panel stating which floors are included per zone.
- 2 & 3 Story 13R Systems may include 3 floors with a maximum of 52,000 square feet per water flow detector and floor control valve. Monitoring panel must annunciate which floors are included in the zone or a placard must be placed on the monitoring panel stating which floors are included per zone.

Note: Attic sprinkler systems must always have its own water flow detectors and control valves as required for the type of system installed.

Fire Department Knox FDC Caps Plano Fire Rescue

In accordance with the International Fire Code, locking fire department connection caps will be required on all new fire sprinkler and standpipe installations **Effective April 3, 2006.**

New Construction

All plans submitted on or after April 3, 2006 must have the Knox 2 ½” FDC plugs and Knox 5” storz cap as required for the design of the system.

You can order the FDC plugs and caps through the Knox-Box Company by going to <http://www.knoxbox.com/store/> or by calling 800-552-5669 or request a Knox Order form through the Plano Fire Marshal’s Office.

Existing Systems

Inspecting Contractors

The fire department connection shall be inspected in accordance with NFPA 25. If caps are missing from the system, all items listed in NFPA 25 shall be verified. New caps meeting the requirements of the International Fire Code shall be installed. The City of Plano Fire Department is using the Knox locking FDC cap system. The caps may be purchased from Knox using one of the above listed methods.

The installing contractor shall back flush the FDC and provide a maintenance report to the property owner for review by the fire inspector.

Fire Department Inspector

The fire department inspector shall fail the annual fire inspection/survey for the property until the maintenance report has been reviewed, indicating that the inspection violation has been corrected. Department desires to assist its customers in the understanding of our submittal policy, procedure, and application process to achieve first-submittal approvals.

Codes

Fire-Sprinkler Systems are to be installed in accordance with the 2015 International Codes and Local Amendments.

**AMENDMENTS TO THE
2015 INTERNATIONAL BUILDING CODE
CAN BE FOUND AT
(www.buildinginspections.org)**

**RECENT CHANGES AND HIGHLIGHTS
2015 INTERNATIONAL FIRE CODE AMMENDMENTS
FOR FIRE PROTECTION SYSTEMS
(see www.planofire.org for full copy of amendments)**

Sec. 505. Is amended by the addition of the following:

Sec. 505.3 Address Marking in Parking Garages. An approved sign displaying the building name and address with a minimum 1 inch high letters and numerals on a contrasting background in new and existing parking garages. The signs shall be located in each elevator lobby and at the entrance to each stairwell.

Sec. 506 Key Boxes

Sec. 506.1 add new Section 506.1.3 to read as follows:

Sec. 506.1.3 Knox Box approved locations. The key box shall be provided at the entrance to each sprinkler riser room and pump room. Ad additional key box shall be provided at the main entrance of large facilities typically where the remote annunciator or fire alarm control panel is located.

Section 507 Fire Protection Water Supplies

Sec. 507.4 is amended to read as follows:

Sec. 507.4 Water supply test date and information. The water supply test used for hydraulic calculation of fire protection systems shall be conducted in accordance with NFPA 291 “Recommended Practice for Fire Flow Testing and Marking of Hydrants” and within one year of sprinkler plan submittal. The exact location of the static/residual hydrant and the flow hydrant shall be indicated on the design drawings.

Sec. 903.2 Where required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12. Automatic Sprinklers shall not be installed in elevator machine rooms, elevator machines spaces, and elevator hoistways. Storage shall not be allowed within the elevator machine room.

Sec. 903.2.11.10 Expanded Tenant Spaces. Fire sprinklers shall be installed in all tenant spaces where the total fire area exceeds 6,000 square feet. For the purpose of fire sprinklers, fire walls, fire barriers, or horizontal assemblies shall not be used to separate single tenant fire areas.

Sec. 903.3.1.4 Installation. Automatic sprinkler and standpipe systems shall be installed with the following:

1. A single underground supply from a looped water main and point for the Fire Department Connection (FDC) shall be provided for all buildings.
2. Fire department connections serving more than 500 GPM shall be provided with one 5-inch Storz connection and one 2-1/2 inch connection.
3. All inspectors' test, ball-drips, and main-drains shall be piped directly to the outside of the building.
4. At least one inspection test valve shall be located at the remote system area.
5. Fire pumps shall be equipped with a properly sized test header.
6. Underground piping shall have a 10-foot minimum separation from all other utilities and placed in a separate trench. Underground piping within 5 feet of the building may be combined with other utilities for entrance to the building.
7. Porches and balconies shall be sprinklered on all Group R-2 and R-3 occupancies.
8. A minimum of 4-feet of pipe between the check valve and inside wall of the Fire Department Connection.

Sec. 903.3.5 is amended to include a second paragraph to read as follows:

Sec. 903.3.5 Water supplies. Water supply as required for such systems shall be provided in conformance with the supply requirements of the respective standards; however, every fire protection system shall be designed with a 10 psi safety factor.

Sec. 903.4 is amended to include a second paragraph after the exceptions to read as follows:

Sec. 903.4 Sprinkler system monitoring and alarms. Sprinkler and standpipe system water-flow detectors shall be provided for each floor tap to the sprinkler system and shall

cause an alarm upon detection of water flow for a minimum of 45 seconds and not more than 90 seconds. All control valves in the sprinkler and standpipe systems except for fire department hose connection valves shall be electrically supervised to initiate a supervisory signal at the central station upon tampering.

Section 905 Standpipe Systems

Sec. 905.2 is amended to read as follows:

Sec. 905.2 Installation standards. Standpipe system shall be installed in accordance with this section and NFPA 14. Manual dry standpipe systems shall be supervised with a minimum of 10 psig and a maximum of 40 psig air pressure with a high/low alarm.

Sec. 905.3 Required Installations.

Sec. 905.3.2 is amended to read as follows:

Sec. 905.3.2 Group A; delete exceptions 1 and 2.

1. Open-air-seating spaces without enclosed spaces.
2. Class I automatic dry and semiautomatic dry standpipes or manual wet standpipes are allowed in buildings that are not high-rise buildings.

Sec. 905.3 is amended by deleting Section 905.3.4 including the Exception.

Sec. 905.3.4 Stages. Stages greater than 1,000 square feet (93 m²) in area shall be equipped with a Class III wet stand-pipe system with 1 ½ -inch and 2 ½ -inch (38mm and 64mm) hose connections on each side of the stage.

Exception: where the building or area is equipped throughout with an *automatic sprinkler system*, a 1 ½ -inch (38mm) hose connection shall be installed in accordance with NFPA 13 or in accordance with NFPA 14 for Class II or III standpipes.

Sec 905.3 add new Section 905.3.9 to read as follows:

Sec. 905.3.9 Travel Distance. Class I standpipes shall also be required on all occupancies in which the distance from accessible points for Fire Department ingress to any point in the structure exceeds two hundred fifty feet (250') along the route that a fire hose is laid as measured from the fire lane.

Sec. 905.4, item 5 is amended to read as follows:

Sec. 905.4 Location of Class I standpipe hose connections.

5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), each standpipe shall be provided with a two-way hose

connection located either on the roof or at the highest landing of stairways with stair access to the roof. An additional hose connection shall be provided at the top of the most hydraulically remote standpipe for testing purposes.

Sec. 905.4 is amended to by the addition of item 7 as follows:

Sec. 905.4 Location of Class I standpipe hose connections.

7. When required by this Chapter, standpipe connections shall be placed adjacent to all required exits to the structure and at two hundred feet (200') intervals along major corridors or pathways thereafter.

Sec. 905; is amended by deleting Section 905.5.

Sec. 905; is amended by deleting Section 905.6

Sec. 905.9 is amended to add a second paragraph after the exceptions to read as follows:

Sec. 905.9 Valve Supervision. Sprinkler and standpipe system water-flow detectors shall be provided for each floor tap to the sprinkler system and shall cause an alarm upon detection of water flow for a minimum of 45 seconds and not more than 90 seconds. All control valves in the sprinkler and standpipe systems except for fire department hose connection valves shall be electrically supervised to initiate a supervisory signal at the central station upon tampering.

Sec. 905; add new Section 905.12 to read as follows:

Sec. 905.12 Locking Standpipe Outlet Caps. The fire code official is authorized to require locking caps on the outlets on dry standpipe connections where the responding fire department carries appropriate key wrenches for removal that are compable with locking FDC connection caps.

Fire Sprinkler Systems Plan Review Submittal

This section facilitates application for plan review. Included are the most frequently found code problems or questions and the Fire Department's standard policies for plan review and system acceptance.

Plans shall be submitted only to the Fire Department. Submittals require the completion of the Fire Department's "Plan Review Submittal Form", Figure 1. Plans will not be received without a completed form, **no exceptions!** (NOTE: When using a courier or mail service, make sure the completed form is attached.)

The permit number must be included on the form. This allows the Fire Department to communicate with Building Inspection Department via computer and achieve a short turn-around time for your plans and inspection scheduling needs. This is a goal we all share.

A minimum of three drawings and one set of hydraulic calculations and hardware specification sheets shall be submitted for review. Plans shall be submitted as blue- or black-line drawings. Plans are to be submitted in their entirety, showing the complete scope of the permit. Complete plans must be submitted **rolled**. **When the scope of the permit does not require any modifications to the fire sprinkler system, an email or letter can be submitted stating that the contractor has reviewed the project and determined that modifications to the sprinkler system are not needed for the proposed scope of work. The letter will then be reviewed against the project scope and submittal requirements removed as determined.**

Projects are tracked by the general contractor's building permit number. This number is required on the drawings just above the title block.

Where the Sprinkler Contractor is the only contractor working on the site, a permit must be obtained from the Building Inspection Department. The permit issued will be for fire sprinkler installation only. A permit fee is required for all Sprinkler Contractors acting as the sole site contractor. The fee is payable to the Building Inspection Department where a permit number will be assigned. Figure 2 depicts the plan-submittal process.

A Fire Sprinkler Plan submittal checklist is provided as Figure 3.

- Faxed plans:
 - Shall not include a match line. All of the plan shall fit on a single page.
 - Plans shall be drawn and submitted to a minimum 1/8-inch scale.
 - Can receive Legal size paper (8 ½ x 14) at Fax: 972-941-7609

- Underground plans:
 - Provide scope of work statement.
 - Example: “Fire sprinkler underground to be designed and installed by XYZ Company from tap to 1 foot above slab” or “Fire sprinkler underground to be designed by XYZ Company and installed by ABC Company from tap to 1 foot above slab.
 - Shall contain a title block and appropriate signatures of the general RME (RME) and the underground fire main RME (RME – U) This may require two title blocks. One plan may contain two submitting companies.

**PLANO FIRE DEPARTMENT
PLAN REVIEW SUBMITTAL FORM**

Permit Number (Required): _____

1ST Submittal Date: _____ Resubmittal Date: _____

Project Name: _____

Project Address: _____

Place "X" by Plan Type

Automatic Sprinklers

- Indicate # of Heads
- Less than 20 Heads
- Underground Only
- BackFlow

Central Station Monitoring

- Liquid Storage Tanks
- Smoke Removal
- As-Built / Revisions
- Other: _____

Fire Alarm System

- Indicate # of Initiating Devices
- Less than 10 Initiating Devices
- Indicate # of Indicating Devices
- Less than 5 Indicating Devices

Submitting Contractor:

Company Name: _____

Person to Contact: _____ **Phone No. :** _____

Submittal Guidelines

- (1) Completed Fire Department Submittal Form (with all submittals & resubmittals),
- (3) Sets of rolled Plans (typically 24" x 36") and One (1) Submittal/Specification Book.
- Fire Alarm plans must include Complete Battery Calculations & Voltage Drop Calculations

To File Electronically:

- **Electronic Complete Information on CD & (1) Blank CD or Thumb Drive for Reviewer's mark-ups & turn in 1 Rolled plan.**
- **On CD, make sure the File Names are appropriate for identification and review of the file. Please use this format: Address, Permit #, Project Name, Brief Description-(Sprinkler or Fire Alarm) Blueprint.**
- **Contact Person on Submittal Form will be notified upon Completion of Plan Review.**

FIRE DEPARTMENT USE ONLY:

A__ R__ Working Days__ Reviewed by: __ Date: _____

FIGURE 1: Fire Department Plan Review Submittal Form

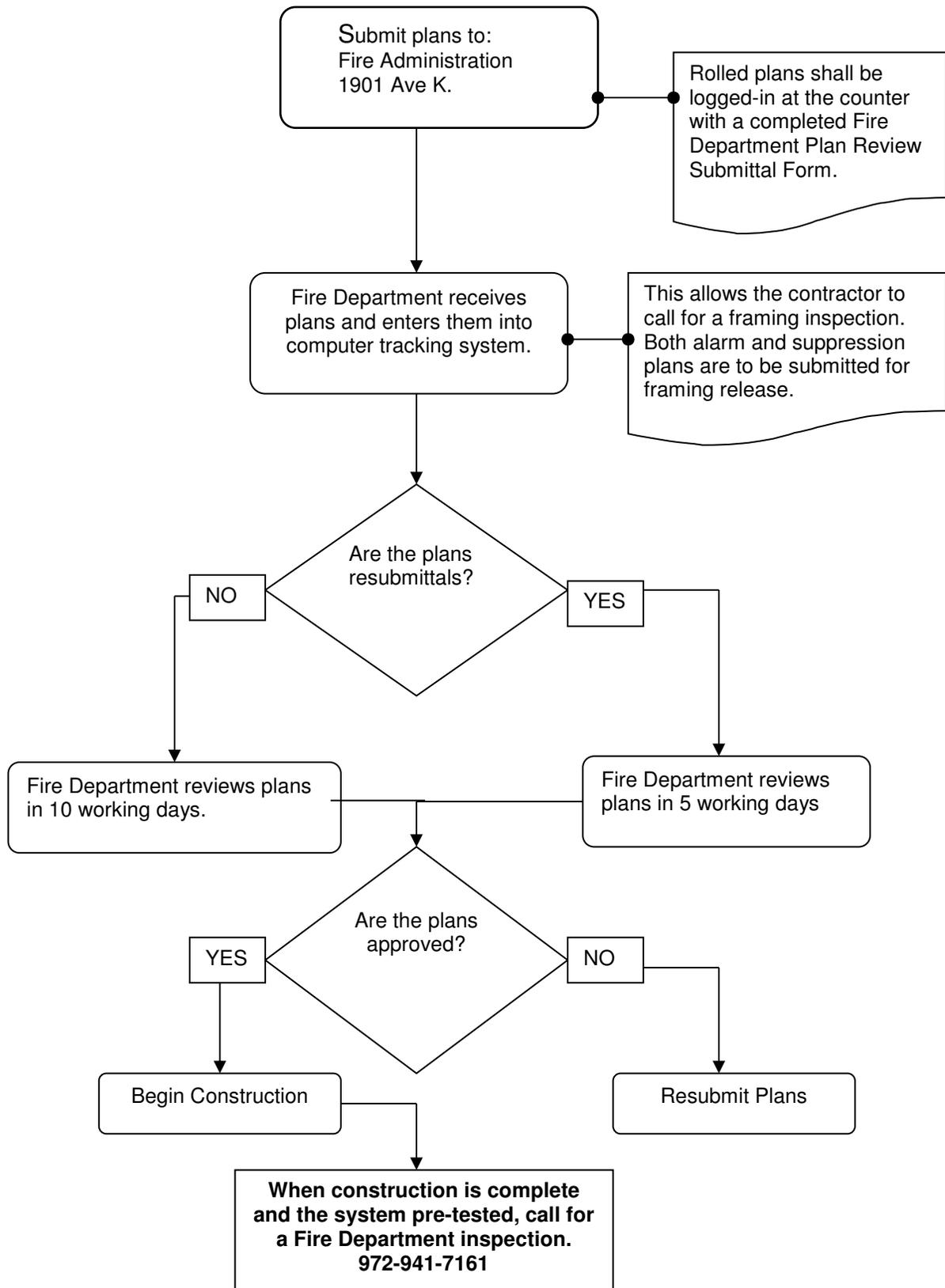


FIGURE 2: Plan Submittal Process

Minimum Sprinkler System Requirements:

- Title block including the following:
 - Permit Number
 - Project Name
 - Project Address
 - Contractor Name, Address and License Number
 - Drawn By
 - Scale
 - Date

- The following notes shall be included on all drawings:
 - Authority Having Jurisdiction
 - Designed in-accordance-with code and code date
 - All wet piping and heads shall be kept above 40 Degrees F
 - Note stating type of existing backflow preventer provided on the system or note stating that there is not a backflow preventer on the existing system.

- Plans drawn to an indicated scale
- RME or PE **WET** signature and stamp on each sheet
- Occupancy classification of each area or room
- Site plan showing water supply and applicable hydraulic references
- Sprinkler schedule with make, type, model, orifice size, and temperature rating
- Area of coverage provided by each head
- Total area protected by floor and system
- Capacity of dry pipe system or anti-freeze systems
- Pipe and fittings type and schedule
- Hanger schedule
- Location of alarm bells
- Size and location of hose valves
- Hydraulic data symbols and reference points
- Graphical representation of scale
- Design area information
- Relative elevations and junction points
- Underground spigot detail
- Embedment detail

Submittal Packet Requirements:

- Brief scope of work description
- Hydraulic calculations
- Hardware specifications and cut sheets
- Copy of RME license

Note: NFPA 13 Chapter 23 details specific requirements for working plans. Provide all applicable details and/or notes.

Figure 3: Fire Sprinkler Plan submittal checklist

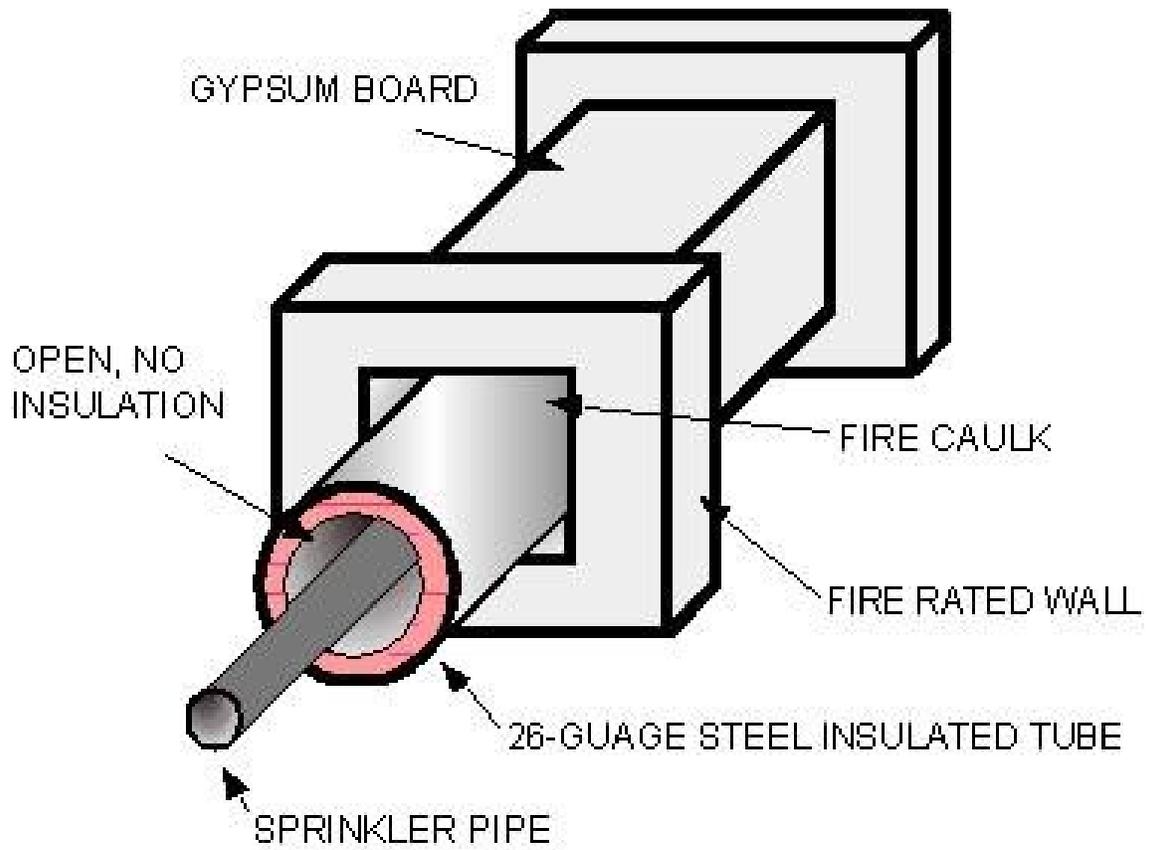
Automatic Sprinkler System Requirements:

- A minimum of 4-feet of pipe between the check valve and the inside wall of the Fire Department connection.
- The FDC shall be within 100 feet of a fire hydrant.
- The FDC shall be clear and unobstructed with a minimum 3-foot clearance.
- A single point for the Fire Department Connection (FDC) shall be provided for buildings with multiple risers.
- Fire department connections serving more than 500 GPM shall be provided with one 5-Inch Storz connection and one 2-1/2 inch connection.
- All inspectors' test, ball-drips, and main-drains shall be piped directly to the outside of the building.
- At least one inspection test valve shall be located at the remote system area.
- Reduced Pressure Zone valves shall be used on antifreeze systems.
- Risers shall be located in heated areas. Riser-room electrical heaters shall be hard wired.
- The riser-room shall be large enough to facilitate maintenance and testing of the sprinkler system.
- Elevator shaft tops and machine rooms shall **not** be sprinklered.
- Porches and balconies shall be sprinklered on all Group R-1 occupancies requiring sprinkler protection, however, the small exterior storage closets adjacent to porches and balconies in apartment buildings are not required to be sprinklered.
- Drip drums shall be in heated areas.
- Dry-system air compressors shall be hard wired.
- A high- and low-air-pressure alarm is required for all dry systems.
- Pre-action systems shall be designed in accordance with NFPA requirements for battery backup. They are not required to be fail safe as in past Plano requirements.
- Provide a 1-inch (minimum) water meter for single family residential (NFPA-13-D).
- Hose valves shall be 2 1/2-inch with cap and chain and does not require a 1 1/2-inch reducer.

- Atriums shall have water curtains.
- Pressure-reducing valves shall be used on systems exceeding 175 psi. These valves shall reduce static and residual pressure. (These are not to be “pressure-restricting valves”)
- Systems with pressure-reducing valves shall have a 3-inch pipe to drain directly to the outside.
- Fire pumps shall be equipped with a properly sized test header.
- Anti-frost and/or chemical additive systems shall meet the City of Plano Building Inspection requirements.
- Back-flow protection shall meet the City of Plano Utility Department requirements for back-flow information call 972-769-4160.
- Pump controllers shall be manual shutdown only (no timers).
- Underground embedment shall be No. 4 crushed stone (3/4” Nominal).
- Underground piping shall have a 10-foot minimum separation from all other utilities and placed in a separate trench. Underground piping within 5 feet of the building may be combined with other utilities for entrance to the building.

Standard details are provided for:

- Pipe Chase: Figure 4
- Embedment: Figure 5
- Attic Insulation: Figure 6
- Spigots: Figure 7
- Storz Detail: Figure 8



**TYPICAL PIPE CHASE
DETAIL**

Figure 4: Typical Pipe Chase Detail

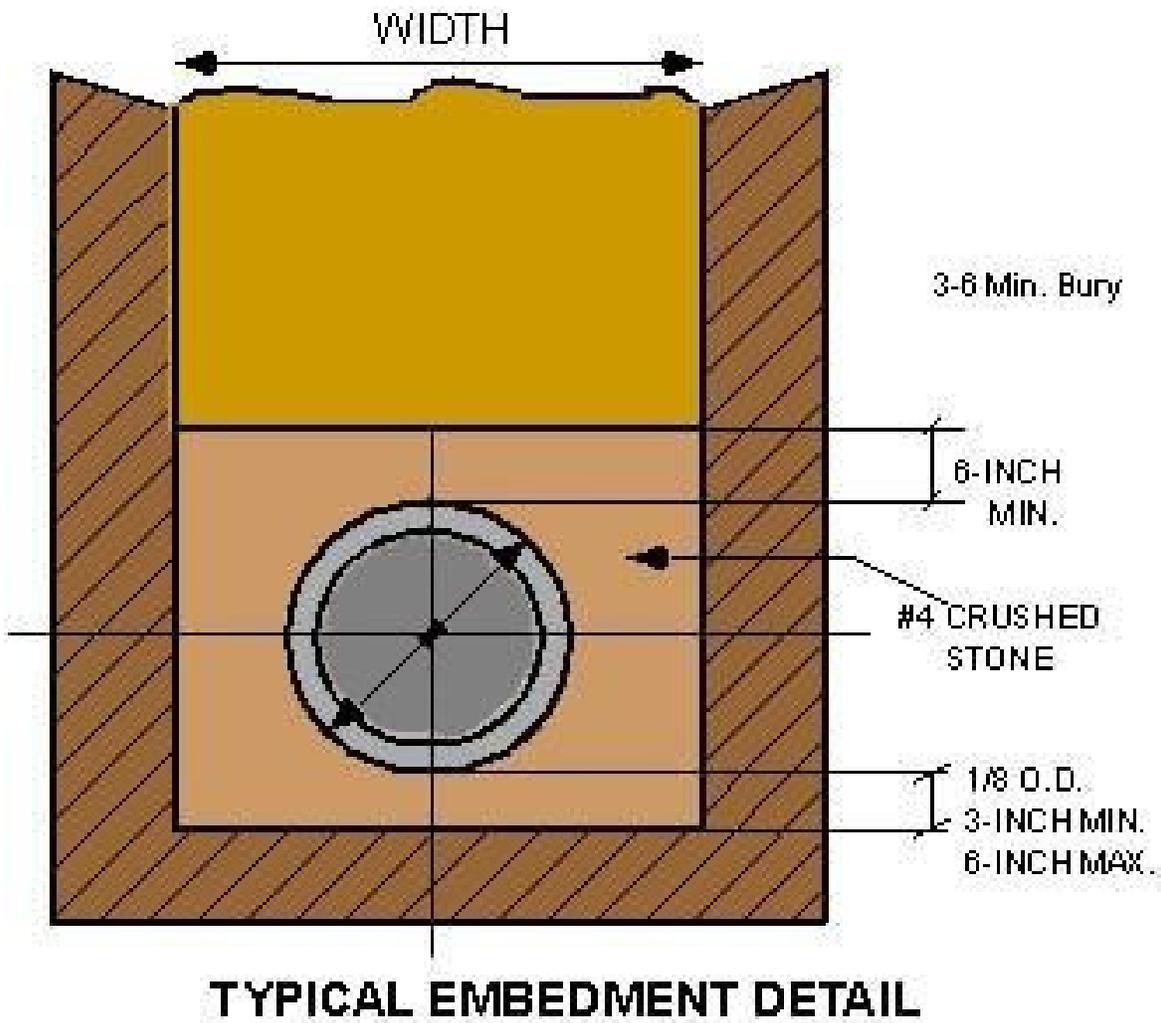
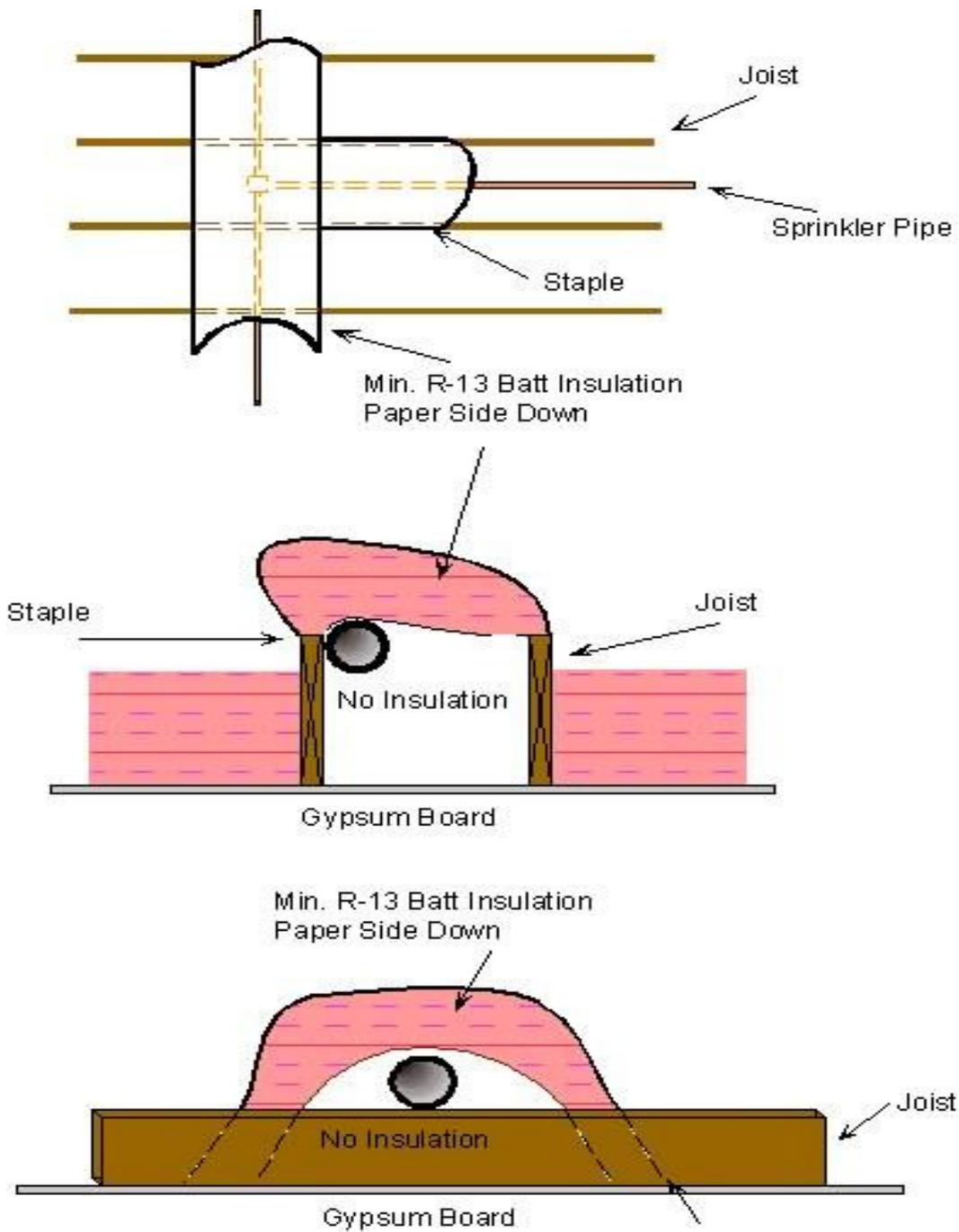
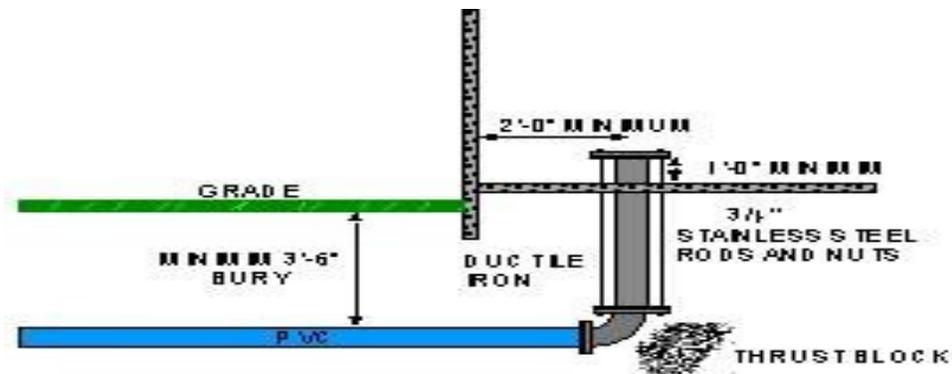


Figure 5: Embedment Detail

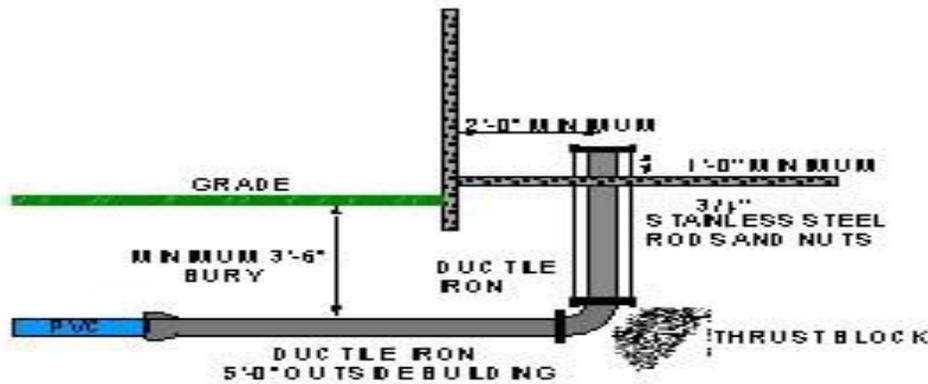


Attic Insulation Details

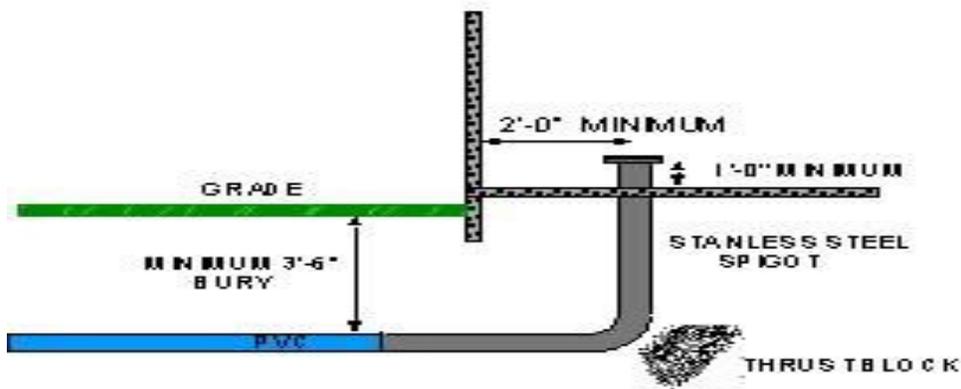
Figure 6: Attic Insulation Details



TYPICAL SPIGOT DETAIL



TYPICAL SPIGOT DETAIL
WHEN FIRE LINE STOPS
6'-0" OUTSIDE OF BUILDING



TYPICAL SPIGOT DETAIL
STAINLESS STEEL RISER

Figure 7: Spigot Details

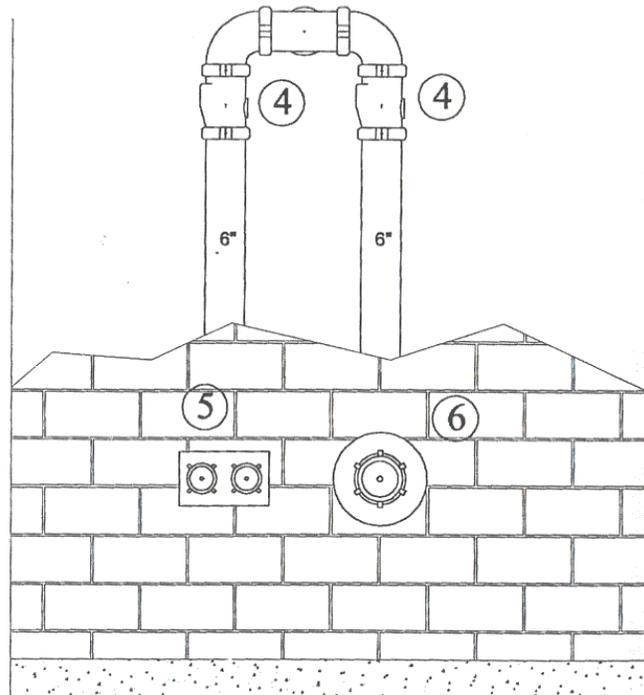
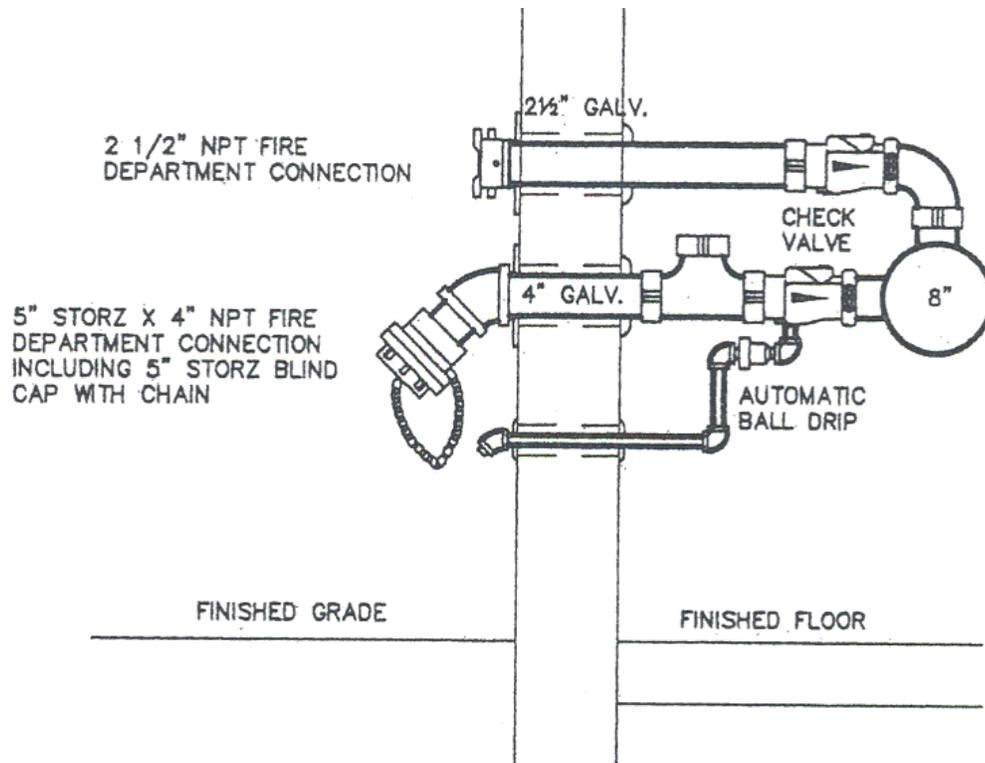


Figure 8: Storz Details