



EULESS FIRE DEPARTMENT FIRE MARSHAL'S OFFICE

EFD-FMO 4-4

2015 Edition
International Fire
Code As Amended
Building Code As
Amended

INFORMATION LINE:

Fire Sprinkler & Standpipe Systems & Hydrant Information

Rev. 7/16

Fire Chief Wes Rhodes

Fire Marshal Paul Smith

NFPA Standards
Adopted

Bold Items are particular to the City of Euleless

Questions concerning any part of this document should be directed to the **Fire Marshals Office at 817-685-1600**.

Disclaimer: The contents of this document are intended to assist you in the preparation of sprinkler plan submittals and installation requirements. This document is not intended to be an all-inclusive listing of the sprinkler requirements in the City of Euleless. Please reference the sprinkler amendments located at <http://z2codes.franklinlegal.net/franklin/Z2Browser2.html?showset=eulesset> under Chapter 34, Article IV Sec. 34-105, Section 900 of the document for local code amendments related to sprinkler installations.

Obtaining Permit: Prior to issuance of a permit and the commencement of any work, a minimum of three (3) copies of blueprint drawings shall be submitted to the Fire Marshal's Office at 201 N. Ector Drive, Euleless, Texas 76039. Such plans shall be drawn to 1/8" scale and be of standard quality, and must be submitted with all engineering calculations, detail diagrams, or other such data as necessary to obtain a permit, including verification of the cost of the job. One (1) copy of blueprint drawing will be kept and others will be returned at the time the permit is issued.

Allow a minimum of ten (10) working days for review of plans prior to any work permit being authorized. Upon completion of the plan review process, a comment sheet will be forwarded to the contractor indicating any changes, deletions, or alterations prior to the permit issuance. Construction of the sprinkler system will be subject to any comments noted on the comment sheet. If necessary, a revised set of drawings may need to be resubmitted prior to permit issuance. Specifics will be included in the plan review letter.

The permit fee is based on the estimated cost of construction for underground and overhead lines including a plan review fee. The underground and overhead may be separated and issued under separate permits. All permit fees shall accompany the plan submittal. A copy of the contract or other document specifying the cost of the job must be submitted to verify the value of the job.

Unless otherwise noted by the Fire Marshal, all sprinkler system contractors must submit a photocopy of their certificate of registration authorizing them to conduct business within the State of Texas prior to performing any work or submitting any plans.

NOTE TO CONTRACTOR: A set of "As Built" plans may be required upon the completion of the installation for a permanent record and will be kept on file with the Fire Marshal's Office.

INSTALLATION REQUIREMENTS (Brief Summary)

General Note: Permits are required for all sprinkler work. All work (underground and overhead) must be conducted by a Texas State licensed fire sprinkler contractor. All construction shall conform to recognized practices and standards. This document is not intended to act as a replacement for, nor to fully contain the requirements of the NFPA Standards, the Fire Code, local amendments or State law.

Underground Installation:

- The water supply line connecting to the City main shall comply with NFPA 13 and 24.

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- The suitable transition piece passing through the foundation and detector check valve shall be approved by the Fire Marshal's office and listed.
- The size of the water supply line for a hydraulically calculated fire sprinkler system shall be governed by those requirements outlined in the adopted standard of NFPA No. 13 and NFPA No. 24. **For some multi building installations up to three (3) buildings may come off of one vault if it can be proven hydraulically, when approved by the Fire Marshal.**
- Typical installation of the private service main (yard line) is to include a detector check (Ames 3000 or equivalent) and back flow prevention device (see typical installation diagram) approved by the Fire Marshal. Note that some installations may not require a vault.
- **A meter bypass and transmitter shall be paid for by the contractor, and installed by the City of Eules.**
- **The O S & Y (outside stem & yoke) valve shall be secured to prevent unauthorized closing with a Knox padlock and chain. Security padlocks shall be of the Medco weatherproof type available through the Knox Company. Application forms are available from the Fire Marshal's Office. The sprinkler contractor is responsible for ordering the security lock. The lock shall be weather resistant. If the backflow preventer is installed inside of a building, the valves shall have electronic tamper switches and be monitored. Monitored valves do not require locks.**
- **Bed yard line in six (6) inches of washed or cushion sand. Backfill with 90% compaction. Yard line trench shall be backfilled in thin layers to twelve (12) inches above the top of the piping with washed or cushion sand, which shall not contain stones, boulders, cinder fall or other materials which would damage or break the piping or cause corrosive action. Fill shall be properly compacted and precautions taken to insure permanent stability. Sandy loam dirt is not acceptable.**
- The back flow valve shall be compatible to the size of the service yard line being installed and shall meet or exceed all AWWA standards. The Director of Public Works shall have final authority as to the make and model of any back flow prevention valve being proposed or installed.
- The yard line shall not be covered prior to acceptance test.

Exception: With approval of the Fire Marshal, underground line may be center loaded within three (3) feet either side of pipe joints.

TESTING

Underground Supply Line:

- Acceptance tests of underground piping to be in accordance with NFPA Standard No. 13 and No. 24.
- It shall be the responsibility of the installer to conduct a complete flushing of the yard line prior to the yard line acceptance. **Line flushing shall be with the full diameter of the pipe unobstructed.**
- Acceptance test and flushing operations shall be conducted in the presence of a City Inspector from the Fire Marshal's Office.
- Owner, operator, or contractor shall allow 24 hours prior notification to the Fire Marshal's Office for an acceptance test.

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- **Riser room doors - If equipped with a locking device a key shall be supplied to the Fire Department and placed in a Knox Box on site at an approved location. If multiple riser rooms are on one property, the locks shall be keyed alike. The exterior of the doors shall be labeled “Fire Sprinkler Riser Room” with minimum four (4) inch lettering.**

Sprinkler/Standpipe System:

- Acceptance test of building's fire protection system shall be in accordance with NFPA Standard 13 and 14 requirements.
- Owner, operator, or contractor shall allow 24 hours prior notification to Fire Prevention Bureau for an acceptance test.

Vault Designs:

- **Vault designs must conform to the vault details as provided by the City of Euless Engineering Standard detail sheets.**
- **Vault locations: Placement of the detector check vault shall be in location approved by the Fire Marshal.**
- **Vaults situated in roadways, fire lane easements or other traffic areas must be of a load-bearing design able to handle an eighty thousand (80,000) pound load.**
- **Vaults in traffic areas must be set to the grade of the roadway surface with a watertight seal around the lid opening.**
- **Vaults not located in traffic areas shall be set a minimum of four (4) inches above all finished grade and landscaping on all four sides, but not greater than six (6) inches.**
- **Vaults shall have a minimum length of about seven (7) feet and a minimum width of about five (5) feet inside dimensions. Vault entryways shall be comprised of a metal spring-loaded lid, with a minimum 36 X 36-inch opening as approved by the fire marshal, with a hold open latch. A metal ladder or similar device shall be installed for easy ingress and egress to the floor of the vault. Vaults shall have a finished floor.**
- **Floor or vault valves shall have a minimum six (6) inch clearance from finished floor material.**
- **NOTE: The City of Euless no longer requires underground vaults on all installations.**

When approved by the fire code official, the requirement for a vault **may** be waived provided:

- 1) The fire line is not more than two hundred (200) feet in length as measured from the point of connection to the city main tap to the sprinkler riser; and
- 2) An approved blow off valve is installed near the end of the line at a location approved by the City if necessary; and
- 3) The riser room is large enough to accommodate the riser and back flow device, and still allow room to test and remove these items; and
- 4) The required water meter transmitter device is mounted at a location and manner approved by the City.

Fire System Plans Shall Include the Following:

- Site Plan, indicating vault design and yard line location.
- Building plan, indicating fire department connection in relation to drives, parking facilities, design obstructions, etc.

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- The design plan of system including calculations for supply analysis and distribution.

Inspection Phone Number:

- To request a Fire System Inspection call (817) 685-1600. Twenty-four hour notice is generally required.

Compliance Certification:

- **A letter shall be furnished to the Fire Marshal that indicates compliance with the fire code standards regarding the technical installation of fire-regulated equipment and systems design.**
- **The letter must be furnished at the time of final approval.**
- **The letter shall be on Company Letterhead and filed with the office of the Fire Marshal at or before final approval of the system.**
- **See attached example letter.**

Installation of Fire Service Yard Line:

“A Company with a Texas State Fire Sprinkler license shall install underground fire sprinkler mains. The company installing the underground is responsible for that portion of piping from the tap to the floor flange in the riser room, unless otherwise approved by the fire code official.”

Fire Tap and Valve to Public Water Main:

Any tap and valve installation to a public water main may be permitted separately. Permit may be obtained from the office of the City Engineer at 817-685-1694. A City of Euless engineering inspector will conduct an inspection of the tap. For clarification, the tap and the inspection of the tap is handled through the engineering department. The plan review, permitting and inspection of all underground piping and components from the tap to the riser are handled by the fire marshal's office.

Construction/ Design Notes:

1. Yard line piping from water main tap to the riser shall meet NFPA Standard #13 and #24.
2. Valves and fittings to be properly supported and anchored in accordance with manufacturers' specifications and NFPA standards.
3. If PVC is used as yard line material, the transition piece between the detector check valve and building foundation shall be approved by the Fire Marshal and listed.
4. Set flange spigot for system riser six (6) inches above the finished floor level.
5. Pipe connections installed shall be rodded, thrust blocked and tested per NFPA No. 13 and No. 24 standards.
6. **Bed yard line in six (6) inches of washed or cushion sand. Backfill with 90% compaction. Yard line trench shall be backfilled in thin layers to twelve (12) inches above the top of the piping with washed or cushion sand, which shall not contain stones, boulders, cinder fall or other materials which would damage or break the piping or cause corrosive action. Fill shall be properly compacted and precautions taken to insure permanent stability. Sandy loam dirt is not acceptable.**

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7. Vault doors to be single or double hinged for easy access. Ring covers are not acceptable by this AHJ. Vault doors to be weather sealed.
8. When permitted in R occupancies other than single or two family dwellings, a 13R system must provide full coverage of the attic, all enclosures and protect the structure to the same extent of coverage as would be required utilizing a NFPA 13 system design unless otherwise approved by the fire code official. (Section 903.1.2)

When approved by the fire code official, a single riser or gang riser arrangement under the control of the HOA is permitted in townhomes. For purposes of this section, a single family or two family dwelling is defined as no more than two contiguous dwelling units with a minimum of five (5) feet of physical separation between separate buildings. Residential units in a grouping of three or more regardless of fire walls or other separations are considered to be multi-family units and are regulated under the sprinkler provisions of this code. (Section 903.1.2)

When approved by the fire code official, attic fire sprinkler protection is not required in town homes where the units do not exceed thirty (30) feet to the top of the roof ridge and the total square footage footprint of the building does not exceed ten thousand (10,000) square feet.”
NOTE: This exception is not allowed where the fire wall between dwelling units is rated at less than a two (2) hour fire wall. (Section 903.1.2)

9. Group R. An automatic fire sprinkler system shall be provided throughout all buildings with a Group R fire area, including multi-family structures, hotels, motels, triplexes, apartments, condominiums or townhomes containing three (3) or more dwelling units, regardless of square footage and regardless of any fire rated walls. (see Section 903.2.8)
10. “903.2.9.3 - Self-service storage facility. An automatic sprinkler system shall be installed throughout all self-service storage facilities.
11. 903.2.11.3 Buildings over 35 feet in height. An automatic sprinkler system shall be installed throughout buildings that have one or more stories, (other than a penthouse in compliance with Section 1510 of the International Building Code) that is located thirty five (35) feet or more above the lowest level of fire department vehicle access, measured to the finished floor.
12. 903.2.11.7 High-piled combustible storage. For any building with a clear height exceeding twelve (12) feet see Chapter 32 to determine if those provisions apply.

“Section 3201.5 – Sprinkler Design Presumption – When a specific product cannot be identified, a fire protection system and life safety features shall be installed as for Class IV commodities to the maximum pile height.”
13. 903.2.11.8 Spray booths and rooms. New and existing spray booths and spraying rooms shall be protected by an approved automatic fire-extinguishing system in compliance with Section 1504.
14. “903.2.11.9 - Buildings 6,000 square feet or over: An automatic sprinkler system shall be installed throughout all buildings with a building area of six thousand (6,000) square feet or greater and in all buildings that are enlarged to be six thousand (6,000) square feet or greater. For the purposes of this provision, fire walls shall not define separate buildings. If a conflict exists among the sprinkler requirements of this code, as amended, the more restrictive provision shall apply. An exception exists for open parking structures in compliance with Section 406.5 of the *International Building Code* having no other occupancies above the subject garage and when approved by the fire code official.”

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15. **“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..”**
16. **“903.3.1.4 – Freeze protection.” – Only dry-pipe, pre-action or listed antifreeze automatic fire sprinkler systems shall be allowed to protect attic spaces. Some exceptions apply for non-ventilated attic spaces.**

Fire Sprinkler Modifications and Underground:

- A. MINOR CHANGES INVOLVING THE ADDITION OR RELOCATION OF FIVE (5) SPRINKLER HEADS OR LESS.
 1. FSS (Fire Sprinkler System) Contractor **must** complete a Fire Permit Application form and provide the established permit fee. The permit fee is based on the contractual price of the job.
 2. Contractor to provide an acceptable drawing showing the location of where work is to be performed in the building; location of existing fire sprinkler heads; location of any new piping and location of new fire sprinkler heads. A scope of work letter may be accepted in lieu of plans with the approval of the fire marshal.
 3. Work may begin upon receipt of the permit.
 4. Final acceptance will be conducted with an on-site inspection by a representative of the Fire Marshal’s office. A hydrostatic test is not normally required on five or fewer heads.
- B. SIGNIFICANT CHANGES INVOLVING THE ADDITION OR RELOCATION OF SIX (6) OR MORE SPRINKLER HEADS.
 1. FSS Contractor **must** complete a Fire Permit Application form and provide the established permit fee. The permit fee is based on the contractual price of the job.
 2. FSS Contractor **must** provide a Blue Line drawing (3 sets) showing location of where work is to be performed and changes that are to take place.
 3. Work may begin upon receiving the Fire Marshal’s comment sheet indicating approval and the fire permit being issued.
 4. Any hydrostatic test of the system will be at the discretion of the Fire Marshal or Fire Inspector assigned to reviewing the work being performed.
 5. Any FSS that has added or adjusted the location **of more than twenty-one (21)** fire sprinkler heads **must** be prepared to have the entire fire system hydrostatically tested to NFPA standards. Any exceptions to this requirement must be authorized by the Euless Fire Marshal and documented on the Inspection form.
- C. UNDERGROUND YARD LINE OR FIRE VAULT REPAIRS, MODIFICATIONS, OR ADJUSTMENTS.
 1. FSS Contractor must complete a fire permit application form and provide established permit fee based on the valuation of the job.
 2. If work to be performed involves the adjustment of the existing yard line or fire vault from its current location, the contractor must provide a Blue Print drawing (3 sets) showing the location and dimensions of the new line or vault location in relation to the property’s site plan.

Note to Contractor: Fire Vault locations are platted as City Utility Easements.

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3. If work performed involves a substantial repair, relocation or replacement of the underground pipe, the City will require a hydrostatic test of the yard line prior to putting the system back into service.
4. **IF WORK TO BE DONE ONLY INVOLVES CHANGES IN THE TYPE OF FDC, NO PERMIT IS REQUIRED.** However, contact with and approval by the Fire Marshal's office is required.
EXAMPLE: Change 2 ½ inch wye connection to a four (4) inch storz connection. The installing contractor must notify the Fire Marshal's Office when changes to the FDC take place.

The FSS Contractor must provide the Fire Marshal's office with a letter of Certification stating that work performed is in compliance with NFPA Standards and Local codes.

Fire Department Connection:

All FD connections for fire sprinkler or standpipe systems shall be a locking KNOX "STORZ", four (4) inch quick connect. An automatic ball drip shall be installed at or near the lowest point of the connection piping. Order form for the KNOX cap is available from the Fire Marshal. The only exception are FDC's on townhomes, which may be a single 2-1/2 inch NST FDC with a locking Knox cap. A 2-1/2 inch FDC is permitted ONLY on townhomes where the flow rate can be met with a single FDC and with the approval of the fire code authority.

Any alternations or repairs to existing systems that are equipped with double female WYE connections shall include an upgrade to the KNOX "STORZ" quick connection.

The connection shall be minimum of forty two (42) inches above finished grade except for wall mounted FDC's when an alternative height is approved by the Fire Marshal and piping shall be painted red.

Vehicle impact protection consisting of four (4) inch iron, concrete filled bollard's must be installed when and where deemed necessary by the fire code official to protect the FDC, and the bollard's must be painted yellow

Installations must be of a design approved by the fire code official.

If a fire department connection serves more than one building it shall have a metal sign of sufficient size to allow for "BLDG" to be stenciled or painted on the top of the plate in two (2) inch stroke letters and the building numbers to follow horizontally in three (3) inch numbers. The lettering shall be white and the background red. The plate shall be attached to the fire department connection pipe and face the road or fire lane. Alternative methods may be approved on a case by case basis.

Fire Hydrant:

Buildings that are protected with a fire sprinkler or standpipe system are required to have a fire hydrant located within one hundred (100) feet of the fire department connection. The distance is measured by an approved route for the purpose of large diameter hose deployment.

The fire sprinkler contractor is the responsible agent to ensure compliance to this provision of the fire code, including the installation of a fire hydrant if required.

A listing of approved fire hydrants is available from the City Engineer at 817-685-1694.

Fire Hydrant Paint:

Fire hydrants shall be painted as approved by the Director of Public Works. Obtain spec sheets from the engineer at 817-685-1694.

Meter Bypass Specifications:

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- **Meter Bypass shall be approved by the Water Department.**

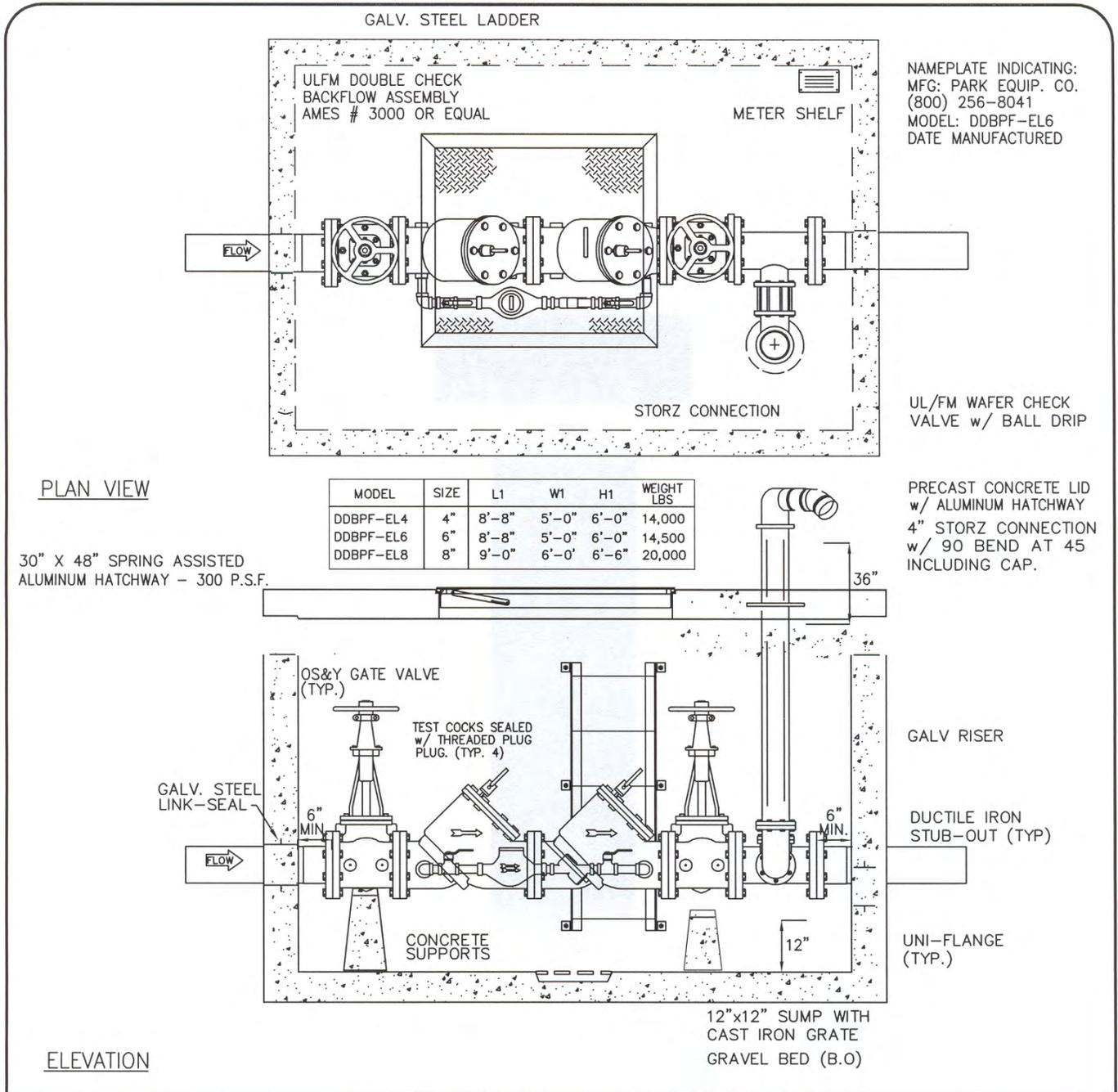
ATTENTION: Installation of the bypass meter is to be conducted by the City of Euless Public Works personnel. They will test transmitter operation at that time. Any questions concerning purchase of bypass meter, transmitter and installation date and time can be answered by calling 817-685-1600. Note that the purchase of the transmitter is made at the time the permit for installation of the vault or riser is made and the purchase price is normally included in the cost of the permit from the Fire Department.

STANDARD DETAILS:

Detail sheets are available on the City web site at;

<http://www.eulesstx.gov/publicworks/docs/Euless%20Standard%20Details.pdf?v=2015-04-01>.

TYPICAL VAULT DETAIL



Specifications

CONCRETE : Class 1 concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

HATCHWAY: 1/4" aluminum diamond plate cover with extruded aluminum frame. Hatch to be furnished with 316 stainless steel snap lock hinges.

Engineering Data

The backflow assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



PROJECT :

CUSTOMER :

ENGINEER :



4 THRU 8" DBL. DETECTOR CHECK BACKFLOW PREVENTER w/ STORZ CONNECTION

SCALE NONE

DWG. NO.

REV.

DATE 1/99

DDBPF-EL6

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SECTION AB

**MINIMUM VAULT DIMENSIONS CAPABLE TO ACCEPT DETECTOR CHECK VALVE,
O S & Y VALVE AND METER BY-PASS ASSEMBLY**

NOTE 1. Contractor should verify vault dimensions to valve requirements.

NOTE 2. Post indicator valve may be required.

NOTE 3. Reference NFPA Standard #24, Private Fire Service mains and their appurtenances for additional details.

From the Director of Public Works and City Engineer:
Approved Valves and Hydrants:

Hydrants:

M&H - Styles 129
Clow - Medallion
American Darling -B-84-B
Mueller - Centurion

Valves:

M & H - Styles 3067
Clow - F5100 Series
AM Darling - CRS 80 Series
Mueller - 2360 Series

NOTES:

1. All hydrants shall be equipped with:
 - A. One steamer connection, 4 1/2 inch I.D., 5 3/4 O.D., National Standard Thread, Four Threads per inch.
 - B. Two, hose connections, 2 1/2 inch I.D., 3 3/16 inch O.D., National Standard Threads, 7 1/2 threads per inch.
 - C. The hydrant steamer shall be equipped with a 5 inch Hydra-Storz connector with built in butterfly vanes as manufactured by Hydra-Shield Mfg., Irving, Texas or approved equal.
2. All fire hydrants shall open to the left (counter-clockwise).

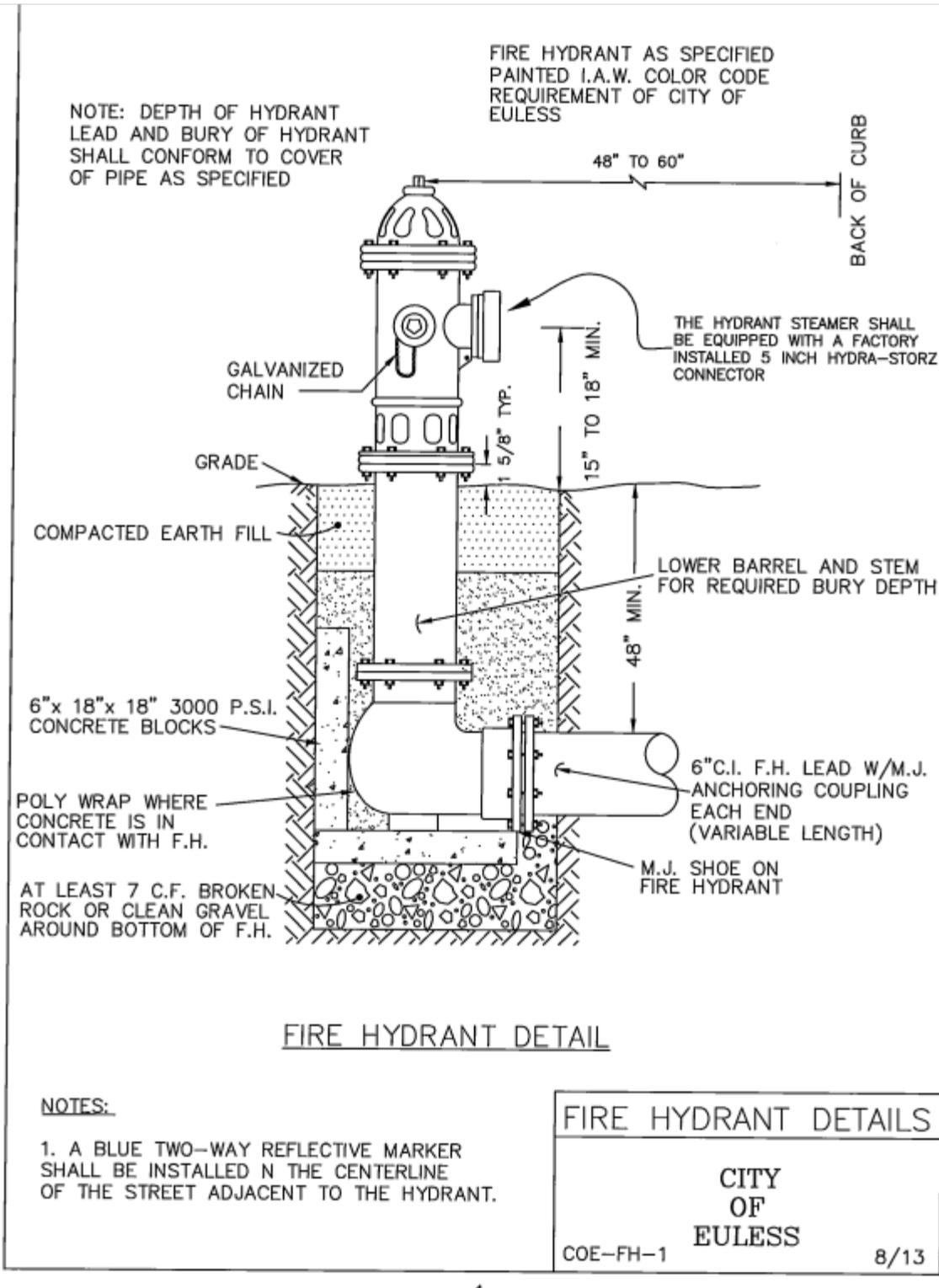
Back Flow Prevention Device:

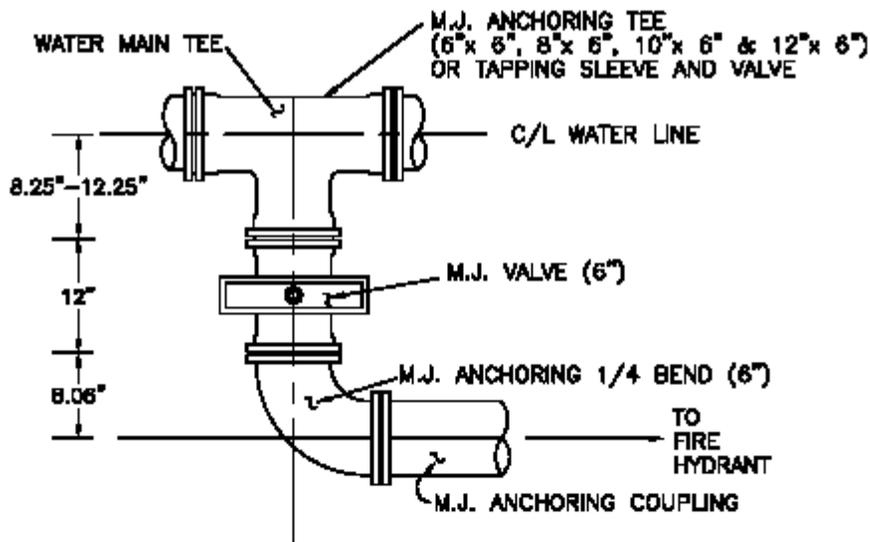
AMES 3000 or EQUIVALENT

REQUIRED TYPE OF FIRE DEPARTMENT CONNECTIONS (FDC)

TYPE: FOUR (4) INCH STORZ CONNECTION WITH LOCKING KNOX CAP

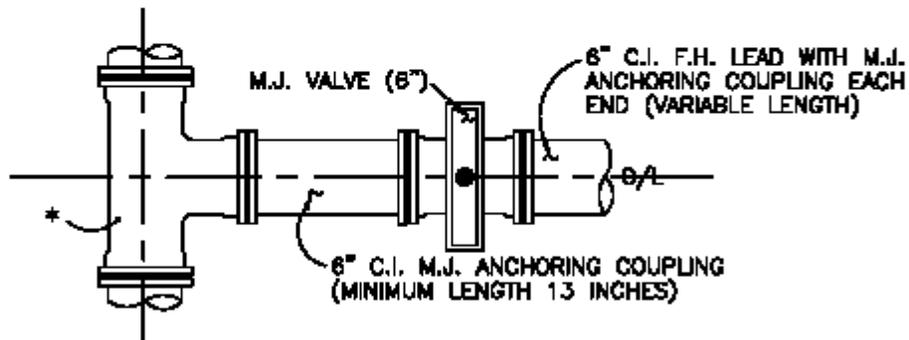
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THESE MEASUREMENTS ARE FOR 6"
 FITTINGS. ADJUST MEASUREMENTS
 FOR THE APPLICABLE PIPE SIZE

SPECIAL FIRE HYDRANT SETTING



NORMAL FIRE HYDRANT SETTING

*C.I. TEE IN WATER MAIN WITH 6"
 STANDARD M.J. BRANCH. USE M.J.
 x M.J. x S. TEE (ANCHORING TEE)
 WHEN M.J. VALVE IS CONNECTED
 DIRECTLY TO THE TEE. WHEN F.H.
 IS TO BE INSTALLED ON AN EXIST-
 ING WATER MAIN USE TAPPING
 SLEEVE AND VALVE (F.x M.J.)

FIRE HYDRANT DETAILS

**CITY
 OF
 EULESS**

COE-FH-2

2/99

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