

CARROLLTON FIRE RESCUE

FIRE MARSHAL'S OFFICE



***Guide for
Construction
2019-2020 Edition***

Updated November 2019

CARROLLTON FIRE RESCUE

Fire Marshal's Office

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2019
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Guide for Construction

Fire Prevention Division

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General

The goal of the Fire Prevention Division is to assist its customers in understanding our submittal, plan review and inspection process and policies, as they pertain to new construction and finish outs. Familiarity with and adherence to these guidelines can greatly assist you in compliance with local codes, ordinances and inspections.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

To expedite the plan review and inspection processes, please refer to the information listed below:

1. All contractors must register or be registered with the City of Carrollton Building Inspections Dept.
2. All Fire Protection Systems plan submittals must be accompanied by a copy of a Texas Department of Insurance License.
3. All calculations must be signed by a State Fire Marshal's Office Licensed Fire Protection Contractor or professional engineer.
4. All plans submitted must be stamped and signed by a State Fire Marshal's Office Licensed Fire Protection Contractor or professional engineer.
5. **1 x Digital copy and 1 x paper copy of plans and spec sheets are required for review.**
6. All inspections require a permit and a set of approved plans on the job site. Failure to have the approved drawings and permit on-site may result in a failed inspection and re-inspection fees.
7. The Fire Inspector will provide written results after each inspection.
8. The contractor is responsible for ensuring that the system(s) being installed or serviced is in compliance with all current locally adopted codes – including, but not limited to the **2018 IFC/IBC**, NFPA Fire Codes, and City of Carrollton **Ordinance No.3886**.
9. Plans approved by the City of Carrollton, Fire Prevention Division give authorization for construction.
10. Final approvals are subject to field verification.
11. Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.

12. All installations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
13. All plan review and inspection process steps must be followed. Deviation from the requirements can result in delays and possible rejection of plans or inspection delays.

It is the goal of the Fire Prevention Division to complete your plan review within the shortest possible time. We strive to complete your plan review within three (3) weeks from receipt of the plan submittal package. Please be advised that revisions, changes, or an incomplete submittal package may delay your final plan approval.

Codes

We do not review plans for compliance with the Americans with Disabilities Act or the Texas Accessibility Standards. We do, however, review plans in accordance with the locally adopted codes. The City of Carrollton has adopted and amended the **2018 International Building and Fire Code**. The **2018 IFC** does reference specific NFPA codes for additional guidance. **Ordinance No. 3886**, which adopted the **2018 ICCs** and our local amendments, is available on the City of Carrollton website.

Below is a list of the most commonly referenced codes:

- International Fire Code, 2018 Edition
- International Building Code, 2018 Edition
- National Electrical Code / NFPA 70, 2017 Edition
- NFPA 13, 2016 Edition
- NFPA 13R, 2016 Edition
- NFPA 13D, 2016 Edition
- NFPA 14, 2016 Edition
- NFPA 17 & 17A, 2017 Edition
- NFPA 25, 2017 Edition
- NFPA 30, 2018 Edition
- NFPA 72, 2016 Edition
- NFPA 92, 2015 Edition
- NFPA 96, 2017 Edition
- NFPA 204, 2015 Edition

With the exception of the above-referenced codes, the most recent referenced code edition will be utilized.

Addressing and Suite Numbering

- The Fire Marshal will assign all addresses.
- Suite numbers will be issued by the Fire Marshal.
- A complete floor plan must be submitted for numbering.
- A copy will be kept in Fire Prevention and Building Inspections.

Fees and Permits

The City of Carrollton's Building Inspections Dept. shall collect the approved fees for inspections, certificates of occupancies, annual permits, the sale and storage of hazardous materials along with other permits as required by the currently adopted ordinances of the City of Carrollton. Also found on City of Carrollton website.

Fire Prevention reviewed permit fees shall be \$4.00 per \$1,000.00 of evaluated work with a minimum fee of seventy-five dollars (\$75.00).

Above/Below grade storage tank installation or removal permit fee is one hundred dollars (\$100.00) per tank.

The Fire Marshal may request copies of bid documents or other items to verify the estimated cost of construction when calculating permit fees

Finish-Out/Building Alteration

Tenant Finish-Out/Building Alteration plans consist of lease spaces within strip malls, warehouses, office buildings, or other construction in which only a portion or portions of the building is modified, altered, or otherwise changed. This typically includes office spaces, existing buildings, multiple occupancy spaces, and warehouses.

Tenant Finish-Out/Building Alterations are reviewed to determine compliance with Fire Department requirements as they relate to building construction and layout, fire department access, exiting and other issues as designated. These requirements can be found in the **2018 International Fire Code**, as adopted and amended by City of Carrollton **Ordinance No.3886**. In an effort to expedite the Fire Department's plan review process, please ensure the following list of items are incorporated into the proposed tenant finish-out plans. Please note that not all of the below requirements pertain to all submittals:

1. Is the building provided with an existing fire sprinkler system or fire alarm system?
2. Address must be legible from the street, rear alleyway/access or fire lane and a color contrasting background. A minimum of 4" high numbers on suites and 10" on buildings.
3. Address must be provided at gas and electric meters and/or disconnecting means.
4. A floor plan shall be submitted to the Fire Marshal for suite number assignments.
5. Alphabetic suite numbers are not permitted.
6. **Knox Box** entry system is **required** on buildings with a Fire Protection or Fire Alarm System and shall be installed 5 feet above grade at main entrance or at fire riser room exterior door.
7. Storage shall be maintained 18" below fire sprinkler heads for sprinklered occupancies, and storage shall be maintained 24" below ceiling for non-sprinklered occupancies. (4' clearance required for ESFR sprinkler heads)
8. All exit doors located in the means of egress that are capable of locking or latching shall be operable from the inside without the use of a key or any special knowledge or effort, or provided with approved panic hardware.
9. Will any type of special protection system be required? (*i.e.*, smoke ventilation/exhaust, smoke dampers, fire alarm, fire sprinkler, kitchen hood, clean agent suppression or storage tank)
10. Additional criteria as required by the Fire Marshal.

Site Maintenance During Construction

Assigned addresses shall be posted on construction sites with each building showing its building number(s) in a highly visible location facing the addressed street. The address shall be in place during the construction period of the project. Numbers shall be clearly marked and posted so as to be visible from the road.

- Exits and exit corridors are unobstructed during all phases of construction
- Adequate removal of construction debris shall be performed during all phases of construction
- Compressed gas cylinders are to be secured and properly marked
- Access roads, fire lanes and fire hydrants are to remain unobstructed at all times during construction. Fire Alarm and Fire Sprinkler Systems shall be maintained per code.
- Standpipe systems in multi-story structures shall be maintained.

Fire Apparatus Access Roads During Construction

- When fire apparatus access roads and water supplies for fire protection are required to be installed, such protection shall be installed and made serviceable in all weather conditions prior to vertical construction, and shall remain serviceable during the time of construction. These Fire Lanes shall be maintained accessible during construction.
- **Striping** – Fire apparatus access roads shall be marked by painted lines of red traffic paint six inches (6”) in width to show the boundaries of the lane. The words “NO PARKING FIRE LANE” or “FIRE LANE NO PARKING” shall appear in four inch (4”) white letters at 25 feet intervals on the red border markings along both sides of the fire lanes. Where a curb is available, the striping shall be on both the vertical and horizontal faces of the curb.
- **Signs** – Signs shall read, “NO PARKING FIRE LANE” or “FIRE LANE NO PARKING” and shall be 12” wide and 18” high. Signs shall be painted on a white background with letters and borders in red, using not less than 2” lettering. Signs shall be permanently affixed to a stationary post and the bottom of the sign shall be six feet, six inches (6’6”) above finished grade. Signs shall be spaced not more than fifty feet (50’) apart. Signs must be installed on permanent buildings or walls or as approved by the Fire Marshal /Fire Chief. These are in addition to the painted Fire Lanes above when required.

New Elevator Install Requirements

- All new installed or replaced elevators shall meet all pertinent codes as adopted and amended by [City of Carrollton Ordinance No. 3886](#).
- A Knox Elevator/Lobby Key Box shall be mounted at each elevator bank at lobby nearest to lowest level of Fire Dept. access. Box shall be from the “1400 Series” type.
- Shall be mounted 5’ above finished floor to the right side of elevator bank.
- This box shall contain 2 x Firefighter elevator recall keys and at least 1 x Emergency Key.
- Automatic fire sprinklers and heat detectors shall **not** be installed in elevator hoist ways, elevator machine rooms, elevator machine spaces, other than pits where such sprinklers would necessitate shunt trip requirements under any circumstances.
- Shunt Trips are prohibited from being installed for elevator shut down.
- Smoke detectors shall be placed in each elevator lobby, elevator hoist ways, and elevator machine rooms/elevator machine spaces for elevator recall.

System Tests

A minimum of twenty-four hours advance scheduling is required for the following tests. Written certification will be provided. See pages 35-38 of this document for further details about test.

- Fire and/or Emergency Alarm test
- Carbon dioxide and dry chemical systems
- Smoke detection systems
- Fire sprinkler and standpipe systems.
- Commercial kitchen hood extinguishing system test
- Access control devices, mag-locks, electric strikes, and automatic gates
- Smoke/Heat exhaust or ventilation systems
- Under/Aboveground fuel tank and/or line test
- The Certificate of Occupancy is issued by the Building Official after all inspections are satisfactorily completed. The construction site supervisor is responsible to show all documents to Building Official including Fire Prevention permits prior to receiving CO.
- All City of Carrollton permitted fire inspections and tests should be scheduled through the Carrollton Fire Rescue Fire Prevention Division at (972) 466-3524

Testing

- Newly installed sprinkler systems require a two (2) hour, two hundred (200) psi hydrostatic test. Existing sprinkler systems require a 2 hour, one hundred fifty (150) psi hydrostatic test. Those systems that will operate above one hundred fifty (150) psi shall be tested at 50 psi above their normal operating pressure for at least two hours.
- If an existing system is extensively altered, the system may be retested at static pressure at the discretion of the Fire Inspector. The decision to retest a system shall be determined at the discretion of the Carrollton Fire Marshal on a case-by-case basis.
- All sprinkler system valves shall be properly marked in accordance with NFPA 13.
- The hydrostatic acceptance test shall be witnessed and approved by a Carrollton Fire Inspector.
- Sprinkler piping and hangers shall not be covered and/or concealed by any means prior to being inspected and approved by a Carrollton Fire Inspector. ***This includes drop grid style ceilings** If ceiling is blocking view at scheduled inspection, the inspection automatically results in a failure. This in turn will require a re-inspection and appropriate fee as outlined in Ordinance # 3702.*
- The underground supply line(s) to the sprinkler riser shall be hydrostatically tested for up to 3 hours and witnessed by the Carrollton Inspector before the system is approved and covered.

Commercial Fire Sprinkler Underground -

These guidelines are to be followed when a business, facility or organization proposes to install an underground water supply serving an automatic fire sprinkler system, within the City of Carrollton.

All fire sprinkler system underground piping for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the 2018 IFC, as adopted and amended by the City of Carrollton Ordinance No. 3886

General Requirements

- All underground lines shall begin at the point of connection to the underground circulating public/private water main. A valve shall be provided at the point of connection such that the fire sprinkler underground service line can be isolated from public/private water distribution system.
- The Double Detector Check valve with backflow preventer & ¾" meter bypass shall be installed in a vault in an easement or with permission by Carrollton Fire Inspector it may be installed in the fire sprinkler riser room per the City of Carrollton GDS – General Design Standards and Carrollton Fire Inspectors final approval. Approved meter reading hatch is required.
- All underground lines shall terminate at the top of the spigot no more than 5 ft. inside the building.
- All ductile iron, retaining rods, and other non-plastic components shall be externally coated for corrosion and poly-wrapped.
- All contractors must be registered with the City of Carrollton Building Inspections Dept.
- Plan Review Application must accompany all submittals. Submittals will not be approved without an application.
- Minimum 6" line unless hydraulically proven to be acceptable to the Fire Marshal for his approval.

- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *City of Carrollton Plan Review/Permit Application*
 - c. *Copy of Contractors Texas Department of Insurance License*

- Plans approved by the City of Carrollton, Fire Prevention Division, give authorization for construction and/or operation.
- Final approvals are subject to field verification.
- Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- Installation, fabrication, or otherwise construction of the system is prohibited without approved plans and permit.
- All installations and/or operations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
- All fire department inspection forms, stamped plans and permits shall be kept in a permit packet on the jobsite until final inspection.
- Submittals that do not conform to the minimum above requirements will not be approved.

Plan Submittal Requirements for Underground

- A copy of your State of Texas Fire Sprinkler Underground or General license is required.
- A "Wet" RME-G signature is required on all plans.
- Provide a minimum of two (2) sets of plans. **1 x signed paper copy and 1 x signed digital copy required.**
- Project name
- Project address
- A scaled copy of the **approved Site Plan** that indicate the location of all fire hydrants and fire lanes servicing the building or site. The size and type of building shall be clearly indicated on the plan.
- Size and location of all water supplies and/or water lines servicing the building or site.
- Flow test data, as witnessed by the Carrollton Fire Inspector, shown on the plans.
- Size and type of all piping identified on the plans
- Location of all valves
- Location and size of all thrust blocks
- Thrust block details
- Detail of the spigot piece and/or inside the building riser turn
- Embedment detail.
- Embedment material shall be No. 4 crushed stone ($\frac{1}{2}$ " – $\frac{3}{4}$ " crushed stone)
- Depth of bury. Minimum is 48 inches/4 feet.
- Underground Vault/valve arrangement or if applying to have DDCV assembly installed in Fire Riser Room than show location of devices.
- Type of fittings/joints, methods of connection and rod size.
- Location and type of Fire Department Connection (FDC) which must be within 100' of the Fire Hydrant. These shall be 2 $\frac{1}{2}$ " connections only and placed on the addressed street face of building. Yard FDCs are prohibited.
- Manufacturer's data sheets for all components used in the project including manufacturer's parameters and listing organizations approval. (1 x paper & 1 digital set)
- Location and type of backflow prevention.
- Provide information on the transition stability of different types of piping (e.g., transition from PVC to ductile iron, retainer glands).

Backflow Prevention for Underground System

- All fire sprinkler systems are required to be provided with an approved method of backflow prevention.
- A double detector check, with $\frac{3}{4}$ inch bypass meter with backflow prevention device, is required. The meter number must be stamped in it and that number must be given to the water billing department. This assembly shall be constructed in a vault and located within an easement or if approved inside fire sprinkler riser room.
- If Fire Marshal gives permission for an antifreeze system to be installed than a reduced pressure zone backflow prevention device is required on those systems.
- Assemblies shall be listed for fire protection use.
- See Pages 41-44 of this document or The City of Carrollton's General Design Standards Section W-11 for the only two approved options regarding DDCV assembly installation options.

Residential (13D) Underground Requirements

1. Water supply will be allowed to be supplied off the domestic water line on the house side of the meter. Calculations shall be provided before installation verifying that adequate water supply pressure, volume, and line size is appropriate for required fire flow.
2. Separate plans for underground supply piping will not be required. Underground supply piping layout shall be included in aboveground plan submittals.
3. Back flow double detector check valves shall be permitted to be installed inside the dwelling unit on the fire sprinkler riser stack. Riser stack must be made accessible for testing and repair purposes (*i.e.*, access door). Contractor shall provide documentation ensuring proper backflow device is installed correctly per manufacturer's specifications, either vertical or horizontal. (Provide with aboveground plan submittal)
4. Plans and Permit for aboveground fire protection system shall be required for each dwelling unit. On units that are identical floor plans/fire protection systems and permitted at the same time only one plan set (minimum 2 copies) need to be submitted but a permit application shall be completed for each dwelling unit. **1 x paper copy and 1 x digital copy of plans required for review.**
5. All residential fire protection systems shall comply with all current City of Carrollton adopted codes as amended by ordinance No.3886 and National Fire Protection Association Standards.
6. Applications for permit must be made and paid for in the Building Inspection Department. The Fire Department will review plans and make inspections for underground and aboveground fire protection systems.

Fire Sprinkler Underground - Inspection

Fire Sprinkler Underground Required Inspections

- Visual inspection of piping, thrust blocks, and vault prior to being covered.
- Hydrostatic test
- Flush of completed underground system
- Fire Sprinkler Underground Final

Fire Sprinkler Underground Visual

- All underground piping and joints must be uncovered and exposed, with labeling of the pipe legible from grade.
- All thrust blocks will be visually inspected and must be uncovered and exposed to grade.
- Depth of bury of the pipe shall be measured and verified.
- All ductile iron, retaining rods, and other non-plastic components shall be externally coated for corrosion and poly-wrapped.
- Visual inspection shall be made by the installing contractor in the presence of a Carrollton Fire Inspector.

Fire Sprinkler Underground Hydrostatic Test

- All new fire service mains shall be tested hydrostatically at not less than 200 psi pressure for a minimum of three hours.
- Any pressure loss or leaks will result in a failed inspection.
- Hydrostatic test shall be made by the installing contractor in the presence of a representative of Carrollton Fire Rescue, Fire Prevention Division.
- *It is not required that the hydrostatic test be completed prior to cover of the underground piping. **If a hydrostatic test is completed after the piping system is covered and fails, the piping will be required to be uncovered, regardless of cover and retested after repair*** All thrust blocks and joints shall be uncovered during hydro test.

Fire Sprinkler Underground Flush

- All underground piping shall be thoroughly flushed **prior to** connecting to the system risers or other aboveground piping system(s).
- Flush shall be made by the installing contractor in the presence of a Carrollton Fire Inspector.
- Proper methods and equipment to perform the flush must be used. All piping used to flush must be properly secured or restrained. *Hoses may not be used to flush.* NFPA 24 describes proper procedure for flushing the underground supply line.
- Field Fire Inspector must approve of flushing method and equipment.

Fire Sprinkler Systems – Above Ground

These guidelines are to be followed when a business, facility, or organization proposes to install or modify an automatic fire sprinkler system within the City of Carrollton; assist in the preparation of an automatic fire sprinkler system submittal for permit; and aid the contractor in being successful. These guidelines are not to be interpreted as to containing all data required for proper design, installation, or approval. All automatic sprinkler systems for the purposes of this guideline and any other guidelines or requirements of the City of Carrollton Fire Department shall conform to the **2018 IFC**, as adopted and amended by the City of Carrollton **Ordinance No. 3886** and NFPA 13.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of Carrollton Fire Rescue.

Installation Requirements

- An automatic fire sprinkler system shall be installed throughout all self-service storage facilities.
- An automatic fire sprinkler system shall be installed throughout all buildings over 6,000 sq. ft., unless otherwise directed herein. For the purpose of this provision, firewalls shall not define separate buildings. I, H & R occupancies are sprinklered regardless of total square footage. A-2 occupancies shall be provided with an automatic sprinkler system over 5,000 sq. ft., occupant load of 100 or more, 2 stories or more in height (including basements) or fire area contains a multi-theater complex. *(direct from IFC 903.2.1.2)*
- Any building exceeding 6,000 sq. ft. that has an inside clear height in excess of 12 feet, making it possible to be used for storage in excess of 12 feet, shall be considered to be high-piled storage and shall comply with the provisions of this section. When a specific product cannot be identified, a fire protection system shall be installed for Class IV commodities, to the maximum pile height.
- Fire protection systems shall be designed with a 10 psi safety factor.
- Automatic Sprinkler System Room Access. Sprinkler system risers providing protection for buildings with multiple tenant spaces must be located in a ground floor room directly accessible from the exterior. The door must be labeled as the Fire Riser room. Buildings with single tenants may access the riser location from the interior of the building.
- Sprinkler systems for all strip retail centers, multiple tenant buildings, speculative warehouses, or any other multiple tenant building, regardless of ceiling height, shall be designed to provide a minimum of Ordinary Hazard Group 2 or Class IV commodities.
- All valves controlling the water supply for automatic sprinkler systems and water-flow switches on all sprinkler systems and standpipe systems, with the exception of fire department hose connections, shall be electronically supervised.
- Approved, supervised, indicating control valves shall be provided at the point of connection to the riser on each floor in multi-floor buildings.
- An approved, audible/visual device shall be connected to every automatic sprinkler system.
- An approved, weatherproof, audible/visual device shall be provided on the exterior of the building in an approved location. The location shall be above the Fire Department Connection (FDC). This device shall be a minimum of 75 candelas.
- The time delay feature on the flow switch switches must be set to a delay of 60-90 seconds.
- The FDC must be within 100 ft. of a fire hydrant as a fire hose lays.
- The FDC shall be clear and unobstructed with a minimum of a 3 ft. clearance.
- Installer shall provide calculations required for “Domestic Use” in 13R FSS – per NFPA 13R and appendix.

General Requirements for Above Ground Fire Sprinkler Systems

- The FDC and FHV shall be installed no higher than 48 inches and at least 18 inches above grade.
- Locking Knox “caps” are required on FHV and locking Knox “plugs” are required on FDC are required for new construction and missing or damaged caps on existing construction.
- FDC shall be located on the addressed street side of the building and fully visible from the Fire Department access.
- FDC(s) shall have approved threaded 2 ½” connections only. “Storz” connections are prohibited.
- FDC must be attached to the building, yard FDC’s are prohibited.
- A **red metal** sign at least 12 inch by 12 inch with white reflective lettering of at least 6” that reads “FDC” on top and then the buildings address below in 4” letters. It shall be posted 5 feet above the actual connections on the wall. Fire Inspector may require larger signs when appropriate. **E-mail proof of sign to inspector for approval prior to ordering sign.**
- Inspector test connections, drains, and ball-drips shall be piped directly to the exterior and labeled as such.
- Riser rooms shall be permanently heated, and such heating appliances shall be hard-wired to the building electrical distribution system.
- **Riser Rooms** shall be large enough to accommodate maintenance and testing activities, but shall be no smaller than **6 ft. by 6 ft.**, shall be at least **8 ft x 8 ft** if the double detector check valve and devices are installed inside. Fire Pump rooms shall be even larger.
- *****Where areas of buildings are equipped with early suppression fast-response (ESFR) sprinklers, ONLY manual *smoke and heat vents* or manually activated engineered mechanical smoke exhaust systems shall be required within these areas.** Automatic Smoke/Heat vents are PROHIBITED with ESFR Fire Sprinklers.
- At least one inspection test valve shall be located at the remote system area.
- Dry-system air compressors shall be hard-wired and pass a 24 hour air leak test.
- Pre-action system solenoids shall be wired for alarm activation upon current loss.
- Both Faxed and emailed plans/permit applications are prohibited.
- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *City of Carrollton Plan Review/Permit Application*
 - c. *Copy of Contractor’s Texas Department of Insurance License*
- Plans approved by the City of Carrollton, Fire Prevention Office, give authorization for construction and/or operation. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Office does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- Installation, fabrication or otherwise construction of the system is prohibited without approved plans and permit on site.
- All installations and/or operations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division;
- All fire department inspection forms and permits shall be kept in a permit packet on the jobsite until final inspection.
- **Hydraulic Placards** shall be on **metal signs** with the details either punched or etched into placard. **Hand written, stickers or scratched details on placards are prohibited.**
- Automatic sprinklers shall NOT be installed in:
 - Elevator machine rooms
 - Elevator machines spaces
 - Elevator hoist ways, other than pits where such sprinklers would not necessitate shunt trip requirements under any circumstances.
- An approved set of “AS BUILT” plans shall be posted in approved labeled document bin.

Standpipes

- Standpipe systems shall be installed in accordance with the International Fire Code and NFPA 14. Class 1 Automatic Wet Systems shall be installed when standpipes or hose valves are required.
- Manual dry standpipe systems (if approved by Fire Marshal) shall be supervised with a minimum of 10 psig and a maximum of 40 psig air pressure with a high/low alarm.
- In addition to the requirements of IFC, Class I standpipes shall also be required on all occupancies in which the distance from accessible points for the Fire Department ingress to any point in the structure exceeds two hundred feet (200') along the route that a fire hose laid as measured from the fire lane. When required by this Code, standpipe connections shall be placed adjacent to all required exits to the structure and at two hundred foot (200') intervals along major corridors thereafter with individual Water flow device.
- Hose valves shall be 2 ½-inch with a locking Knox cap & 3'-5' above finished floor.
- Hydraulic calculations shall be provided of form sheets that include a summary sheet, detailed work sheets and a graph sheet.

Plan Submittal Requirements for Above Ground Fire Sprinkler System

- The plans will be reviewed based on the requirements in the **IFC 2018** and current city amendments along with NFPA 13.
- A "Wet" PE or RME signature is required on the plans and hydraulic calculations. Plans shall be clear and legible and all sheets shall be in a common and appropriate scale (1/8" minimum). Submittals done on electrical, lighting or other "busy" plans are not acceptable.
- A minimum of two (2) sets of plans shall be submitted. **1 x signed paper copy and 1 x signed digital copy of plans are required.** Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review. The following information shall be provided on the plans:
 - a. Floor plan of building(s).
 - b. Square footage
 - c. Location of doors
 - d. Intended use of each room identified
 - e. North arrow provided
 - f. Location of the Fire Department Connection (FDC)
- Occupancy classification and Occupant Load
- Scope of Work
- Site plan to include all fire hydrants, fire lanes, fire department connections and the fire service lead-in
- Equipment List
- Hydraulic calculations for each design area including area of coverage per head, design density, and specific commodity protected.
- Two (2) sets of data specifications sheets for all equipment shall be provided(1 digital/1 paper)
- Specific materials in the specification booklet are to be identified by an arrow or highlighter
- A complete full-height cross section of the building and total area protected by each system
- Capacity of the dry system
- Hydraulic node symbols and schedule

(Plan Submittal Requirements for Above Ground Fire Sprinkler System continued.)

- Elevations of sprinkler lines and node points
- Hanger details.
- Hanger locations
- Sprinkler riser diagram and riser/fire pump room size
- Inspectors test connection detail
- Auxiliary drain details
- Size and location of hose valves and or standpipes
- Graphical scale
- Description of the design area (Hazard Classification)
- Design density of each design area
- Clearly indicate each remote area
- Provide graphic representation of the water flow analysis
- Provide the water supply test information
- Provide notes to indicate the following:
 - a) Design code NFPA 13
 - b) FSS installed per NFPA 13 & list the responsible party regarding freeze protection

- **If applying** to have double-check detector with backflow preventer and ¾ inch meter bypass installed in riser room instead of underground vault, then installation shall meet City of Carrollton's General Design Standards and show all details on plans. ***This specific request can only be approved if every criteria is met and approved by Carrollton Fire Inspector.***
- Provide a copy of your State of Texas State Fire Marshal's Office license
- The title block shall contain the following:
 - a. Location of the installation
 - b. Name and complete address of the business
 - c. Name and complete address of the installing company
 - d. Licensing information
 - e. "Wet" signature of the RME
 - f. Date
 - g. Drawn by

- Shall state that it meets all pertinent NFPA and IFC standards along with Authority Having Jurisdiction (City of Carrollton) requirements
- City of Carrollton Contractor Registration Number
- Scale with graphic reference
- A legend shall be provided to include:
 - a. Symbol, sprinkler description, manufacturer, model number, and quantity for each device
 - b. Pipe and fittings type
- See NFPA 13, for additional plan submittal requirements.
- An approved set of "AS BUILT" plans shall be posted at FACP, the Fire Sprinkler Riser and the Fire Pump in an approved labeled document bin.

Tenant Finish-Out/Building Alteration

These guidelines are to be followed when a business, facility or organization proposes to modify an existing automatic fire sprinkler system within the City of Carrollton. This will assist in the preparation of an automatic fire sprinkler system submittal for permit and aid the contractor in being successful. These guidelines are not to be interpreted as containing all data required for proper design, installation, or approval. All automatic sprinkler systems for the purposes of this guideline and any other guidelines or requirements of the Carrollton Fire Rescue shall conform to the **2018 IFC**, as adopted and amended by the City of Carrollton **Ordinance No. 3886** and NFPA 13. This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

Installation Requirements

- Please see the Guidelines for Automatic Fire Sprinkler Systems. To expedite the plan review and inspection processes, please refer to the information listed below.

Plan Submittal Requirements for Tenant Finish-Out/Building Alteration

- Fax or emailed submittals will not be accepted.
- A “Wet” RME signature is required on all plans.
- Hydraulic calculations will be required if the area(s) to be modified are within the original design area and/or the modifications proposed create a higher hazard classification as determined by the Fire Marshal.
- Plans shall be clear and legible and all sheets shall be in a common and appropriate scale.
- A minimum of two (2) sets of plans shall be submitted. **1 x signed paper copy and 1 x signed digital copy of plans and specification sheets are required.**
- Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review.
- One (1) set of data specifications sheets for all equipment used shall be provided.
- Specific materials in the spec booklet are to be identified by an arrow or highlighter.
- A minimum of one (1) set of hydraulic calculations shall be provided. The following information shall be provided on the plans.
- Floor plan
- Square footage
- Intended use of each room is identified
- Occupancy classification and type of hazard as listed by certified personnel (*i.e.*, light, ordinary)
- Scope of Work.
- Site plan to indicate where, in the building, the modification is to be performed. Cloud area or otherwise indicate.
- Type of sprinkler heads and area of coverage per sprinkler head
- Elevation of sprinkler lines and node points
- Hanger details
- Hanger locations
- Provide notes to indicate the following design standards

(Plan Submittal Requirements for Tenant Finish-Out/Building Alteration continued)

- The title block shall contain the following:
 - a. Location of the installation
 - b. Name and complete address of the business
 - c. Name and complete address of the installing company
 - d. Licensing information
 - e. Date
 - f. Drawn by
 - g. Authority Having Jurisdiction
 - h. Scale

- An equipment legend shall be provided to include:
 - a. Symbol, sprinkler description, manufacturer, model number, and quantity for each device
 - b. Pipe and fittings type
 - c. Indicate which sprinkler heads are new, existing and relocated
 - d. Indicate what piping is new and existing

- See NFPA 13 for additional plan submittal requirements.

- Each submittal shall have a completed:
 - a) *Contractors Registration Form (unless previously registered)*
 - b) *City of Carrollton Plan Review/Permit Application*
 - c) *Copy of Contractors Texas Department of Insurance License*

- Plans approved by the City of Carrollton, Fire Prevention Division, give authorization for construction and/or operation. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- Installation, fabrication, or otherwise construction of the system is prohibited without approved plans and permit.
- All installations and/or operations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
- All fire department inspection forms, City of Carrollton stamped plans and permits shall be kept in a permit packet on the job site until final inspection.
- An approved set of "AS BUILT" plans shall be posted at FACP, each Fire Riser and Fire Pump regarding both the Fire Sprinkler and the Fire Alarm systems, if altered. These shall be placed in an approved labeled document bin.
- If the tenant finish out or remodel requires less than 10 fire sprinkler heads to be added, altered or relocated then a scope letter signed by a RME may work. This letter shall state how many heads are to be added or altered, their location, the reason for the work and proof that the current fire sprinkler system can handle the added heads. Letter shall also document hydraulic details from sprinkler placard.
- If the current Fire Sprinkler System does not have approved metal hydraulic placards with the details punched or etched into it (or otherwise made permanent) then they shall be installed prior to calling for this inspection.

Fire Alarm Systems

*These guidelines are to be followed when a business, facility, or organization proposes to install or modify a fire alarm system within the City of Carrollton. All fire alarm systems for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the **2018 International Fire Code**, as adopted and amended by the City of Carrollton **Ordinance No. 3886** and NFPA 70 & NFPA 72 .*

This guide does not replace nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

Installation Requirements

- All Fire alarm systems, *new or replacement* **shall be addressable**.
- Fire alarm systems, new or replacement, serving 200 or more initiating devices, or 20 or more smoke detectors, shall be analog intelligent addressable.
- Manual alarm actuating devices (pull stations) shall be an approved double action type.
- All fire alarm systems shall be installed in such a manner that the failure of any single initiating device or single open in an initiating circuit conductor will not interfere with the normal operation of other such devices. All signaling line circuits (SLC) shall be installed in such a way that a single open will not interfere with the operation of any addressable devices (Class A). Outgoing and return SLC conductors shall be installed in accordance with NFPA 72 requirements for Class A circuits and shall have a minimum of four feet separation horizontal and one foot vertical between supply and return circuit conductors. The initiating device circuit (IDC) from a signaling line circuit interface device may be wired Class B, provided the distance from the interface device to the initiating device is ten feet or less. **IN ALL R-1, R-2, R-3, and R-4 OCCUPANCIES THE A/V NOTIFICATION (NAC) CIRCUIT SHALL BE CLASS A.**
- All alarms are required to be transmitted to the U.L. Listed Central Station monitoring company with the device(s) designation and location, or addressable device identification. This is commonly referred to as CONTACT ID. (See *Fire Sprinkler Fire Alarm Monitoring Guidelines* for additional information).
- All alarm systems, new or replacement shall transmit alarm, supervisory and trouble signals descriptively to the approved central station, remote supervisory station or proprietary supervising station as defined by NFPA 72 , with the correct device designation and location of addressable device identification.
- Alarms and signals shall **not** be permitted to be transmitted as a “General Alarm”, “General Trouble”, “General Supervisory” or: Zone Condition”.
- An exterior audible and visible notification device shall be provided on the exterior of the building and shall be located above the Fire Department Connection. This notification device shall operate on a water flow alarm only, shall be non-silenceable while water is still flowing through fire sprinkler system. The notification device shall be wired from the fire alarm control panel as a latching circuit.
- Hard-wired systems shall be zoned by device type (e.g., water flow, smoke, heat, manual pull, or fixed extinguishing system) **per floor**. Addressable or analog systems shall show address numbers on the plans and provide a detail list of address verbiage for approval.
- Primary power shall be from a dedicated circuit, which is listed on the approved building electrical plans.
- Requirements for high-rise (55 ft.) and emergency voice/alarm evacuation shall be found in **Ordinance No. 3886**
- Fire pumps shall be monitored for “loss of power”, “phase reversal” and “pump running” conditions on distinct circuits.
- Fire Pump Running shall send an Alarm signal to monitoring company so that the Fire Department can respond. It shall **not** be a supervisory signal.

(Installation Requirements for Fire Alarm Systems continued)

- All systems and circuits shall be supervised.
- When the fire alarm control panel is not located at the main entrance, a remote annunciator shall be located at the main entrance. FACPs shall be located at Fire Sprinkler Risers or at main entrance only.
- Fire Alarm Systems **shall be re-settable without any special knowledge or the use of an access code.** Key to reset pull station should be placed inside Knox Box.
- Addressable/analog intelligent systems shall contain a history file of the past 100 events.
- Duct detectors shall be a supervisory signal.
- An adequate number of fire alarm notification devices shall be provided such that a minimum sound level 15 dbl above average ambient will be achieved.
- All fire alarm equipment shall be listed for its intended purpose.
- Combination Fire and Burglar alarm panels/systems are prohibited.
- The fire alarm control panel shall be listed and compatible with all devices and capable of delivering all required signals.
- Fire alarm systems shall be installed only by companies and individuals licensed by the State of Texas Fire Marshal's Office.
- Initiating Circuits: Water flow alarms shall be programmed non-silence able.
- The exterior horn/strobe shall operate on water flow alarm only.
- Notification Circuits: The exterior notification devices shall be non-silence able. The interior strobe(s) only shall continue to flash after the panel is silenced on the condition the alarm was a water flow alarm only.
- The notification devices shall be wired from the fire alarm control panel as a latching circuit.
- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *Carrollton Fire Department Plan Review/Permit Application*
 - c. *Copy of Contractors Texas Department of Insurance License*
- Plans approved by the City of Carrollton, Fire Prevention Office, give authorization for construction and/or operation. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Office does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- Installation, fabrication or otherwise construction of the system is prohibited without approved plans and permit.
- All installations and/or operations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
- All fire department inspection forms, permits and stamped drawings shall be kept in a permit packet on the job site until final inspection.
- All valves controlling the water supply for automatic sprinkler systems pumps, tanks, water levels and temperatures, critical air pressure and water-flow switches on all sprinkler systems and standpipe systems, with the exception of fire department hose connections shall be individually electrically supervised by a listed fire alarm control unit.
- Approved supervised indicating control valves shall be provided at the point of connection to the riser on each floor in multistory buildings.
- An approved labeled document bin shall be installed next to fire alarm control panel with all construction documents, panel instructions and all other documents required by IFC and NFPA.

Fire Alarm Plan Submittal Requirements

- A “Wet” APS signature is required on all plan drawings and calculations.
- The plans will be reviewed based on the requirements in the **2018 IFC** and NFPA 72.
- Plans shall be clear and legible and all sheets shall be in a common and appropriate scale.
- Plans shall include interior walls, rooms. Ceiling tiles shall not be shown on the drawings.
- A minimum of two (2) sets of plans shall be submitted. **1 x signed paper copy and 1 x signed digital copy of plans and spec sheets are required.** Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review. The following information shall be provided on the plans:
 - a. North arrow
 - b. Floor plan
 - c. Building permit number
 - d. Project name
 - e. Project address
 - f. Device location with ID #
 - g. Site map inset
 - h. Type of device
 - i. Provide a “point-to-point” wiring configuration
 - j. Fire alarm control panel type and location
 - k. Annunciators
 - l. Square footage
 - m. Location of doors
 - n. Intended use of each room
 - o. Location of all air handling units
 - p. Show location of all fire sprinkler risers, flow switches, tamper switches, and fire pumps (*if equipped*).
 - q. Notification devices shall indicate candela rating
 - r. Heat detectors shall indicate temperature rating
 - s. Indicate the length of wiring between devices
 - t. Details of ceiling height and construction.
 - u. Classification of supervising station.
 - v. Official Occupancy Classification per City of Carrollton
- The notification device wiring shall be shown different than the initiating device wiring. When necessary, they shall be provided on different plan drawings.
- Scope of Work
- Sequence of Operations in matrix format
- Equipment List
- Contact ID/Address table
- Specification booklet shall contain the following:
 - a. A minimum of one (1) set of data specifications sheets for all devices and equipment shall be provided along with digital copy of them.
 - b. Listing of the system design, operation and reset functions
 - c. **Specific materials in the specification booklet are to be identified by an arrow or highlighter**
 - d. Battery discharge curves
 - e. Wire specifications
 - f. Addressable device list
 - g. Type of primary power and secondary power (*i.e.*, size and number of batteries to be provided)

(Plan Submittal Requirements for Fire Alarm Systems continued.)

- Device mounting height diagrams
- Voltage drop calculations provided. Shall clearly indicate each notification device and wire length.
- Battery calculations to include Standby and Alarm
- The notes shall clearly indicate that the initiating circuit wiring shall be Class A.
- Identification of the type of conduit used, if any
- Identification on the gauge and type of wire used
- Notes shall identify the following:
 - a. Authority Having Jurisdiction (City of Carrollton)
 - b. Design in accordance with the International Fire Code and NFPA 72
 - c. Duct detectors may sound supervisory only - not a general alarm
 - d. Primary power to be a dedicated circuit

- The use of each room shall be identified on the plans.
- The title block shall contain the following:
 - a. Location of the installation
 - b. Name and complete address of the business
 - c. Name and complete address of the installing company
 - d. Licensing information
 - e. "Wet" signature of the APS
 - f. Date
 - g. Drawn by
 - h. Authority Having Jurisdiction.

- The riser diagram shall include all devices as they are shown on the plans, or wired.
- Each riser & other valves shall have their own specific tamper signals, and each riser shall have their own specific water flow signal.
- A legend shall be provided to include:
 - a. All devices shown on plans
 - b. Total number of devices of each type
 - c. Symbol, device description, manufacturer, model number, and quantity for each device

- 4 Device address numbers provided for addressable/analog intelligent systems.
- An approved set of "AS BUILT" plans and other documents required by NFPA and IFC shall be posted at FACP in an approved labeled document bin.
- State of Texas Fire Marshal's installation certificate shall be filled out and posted at FACP.
- Breaker and or dedicated power supply to Fire Alarm shall be labeled as such per **2018 IFC** and NFPA 72 . requirements.
- Where a circuit breaker is the disconnecting means, a listed breaker locking device shall be installed (NFPA 72 – Chapter 10.6.5.4)

Fire Alarm/Fire Sprinkler Monitoring

Operational Guidelines

These guidelines are to be followed when a building, or facility, within the City of Carrollton, is provided with an approved, automatic fire sprinkler system that shall be required to be monitored. All fire sprinkler system and fire alarms for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the **International Fire Code 2018 edition**, as adopted and amended by the City of Carrollton **Ordinance No. 3886** and NFPA standards.

Fire Alarm/Sprinkler System Monitoring/Operational Guidelines

- All valves controlling the water supply for automatic sprinkler systems pumps, tanks, water levels and temperatures, critical air pressure and water-flow switches on all sprinkler systems and standpipe systems, with the exception of fire department hose connections, shall be electrically supervised by a listed fire alarm control unit.
- Approved supervised indicating control valves shall be provided at the point of connection to the riser and standpipe/hose valve on each floor in multistory buildings.
- Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved central station listed by Underwriters Laboratories, or when approved by the code official, at a constantly attended location. *A copy of the monitoring contract shall be given to Fire Inspector at time of acceptance test for fire alarm.*
- An approved, audible/visual device shall be connected to every fire sprinkler system.
- A single weatherproof, audible/visual device shall be provided on the exterior of the building above the Fire Department Connection (FDC). This device shall be a minimum of 75 candela.
- The time delay feature on the waterflow switch switches must be set to a delay of 60 seconds but no more than 90 seconds.
- *Initiating Circuits:* Waterflow alarms shall be programmed non-silence-able.
- The exterior horn/strobe shall operate on waterflow alarm only.
- *Notification Circuits:* The exterior notification devices shall be non-silence-able. The interior strobe(s) only shall continue to flash after the panel is silenced on the condition the alarm was a waterflow alarm.
- Duct detectors may alarm supervisory only when monitored by a constantly attended location.
- Supervisory signals shall be transmitted to the monitoring company.
- **All Fire alarm systems, new or replacement shall be addressable and meet current adopted codes and amendments** . This means a permit shall be pulled and approved.
- Fire alarm systems, new or replacement, serving 200 or more initiating devices, or 20 or more smoke detectors, shall be analog intelligent addressable or digital micro processing unit.
- Requirements for high-rise (55 ft.) and emergency voice/alarm evacuation shall be found in **Ordinance No. 3886**.
- Fire pumps shall be monitored for “loss of power”, “phase reversal” and “pump running” conditions on distinct circuits.
- **Alarms shall *not* be permitted to be transmitted as a “General Alarm” or “Zone” condition. This information must be in turn, transmitted to the Carrollton 911 Dispatch Center, with correct designation.**
- Buildings with a floor used for human occupancy located more than 55 feet above the lowest level of Fire Department vehicle access shall have an automatic smoke detection system, Fire Department communication system and an emergency voice/alarm communication system.

Commercial Kitchen Suppression Systems

These guidelines are to be followed when a business, facility or organization proposes to perform cooking operations that will involve grease-laden vapors, within the City of Carrollton. This guideline identifies protection for cooking surfaces which include; deep fat fryers, griddles, upright broilers, char broilers, range tops and grills, open face ovens, salamanders, cheese melters, woks, open face pizza ovens, and other similar equipment. The plenum space within the hood, above the filters, and exhaust ducts servicing the hood shall also be protected. All commercial cooking operations for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the **2018 International Fire Code**, as adopted and amended by the City of Carrollton **Ordinance No. 3886**, NFPA 17 and NFPA 17A.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

Installation Requirements

- The piping shall be rigidly supported to prevent excessive movement and shall be protected from mechanical or other damage.
- Both a manual and automatic means of activation shall be provided. A minimum of one manual activation pull station shall be provided in the path of egress, and shall be located no more than five feet above the floor. The manual actuation device shall be located a minimum of 10 feet and a maximum of 20 feet from the kitchen exhaust system.
- Where multiple manual actuators are installed for protection of separate extinguishing systems, they shall be clearly identified as to the hood being protected.
- Distinctive audible and/or visual alarms shall be provided to indicate system operation and activation. Specifically, an audible/visual notification device shall be provided to indicate system operation, requiring personnel attention and system recharge.
- The fire suppression system shall be interconnected to the building fire alarm system. Activation of the Kitchen Hood Fire Suppression System shall cause the fire alarm to activate throughout the building.
- Activation of the fire suppression system shall automatically shut off the fuel supply, electrical power supply, and ventilation controls if required, fans, and any other equipment necessary. Shutoff valves and switches shall be of the types that require a manual action to reset.
- When a building fire alarm system is provided, notification of the activation of the fire suppression system shall transmit Contact ID and conform to the *Fire Alarm Monitoring Guidelines*.
- A Type-K type portable fire extinguisher shall be installed at an approved location, and within 30 feet of commercial food heat-processing equipment, as measured along an unobstructed path of travel.
- Pre-engineering fire suppression systems shall be installed only by companies and individuals licensed by the State of Texas Fire Marshal's Office and shall be tested in attendance with UL300 and listed/labeled for intended application.
- Shall submit certification showing proof that the installer is certified by that manufacturer to install that specific brand of vent-a-hood FSS.
- A heat detector shall be installed in hood to automatically turn on exhaust system upon cooking if there is not another approved automatic system in place.

Plan Submittal Requirements for Commercial Kitchen Suppression Systems

- The plans will be reviewed based on the requirements in the **2018 IFC**, and NFPA 17A.
- A “Wet” FEL signature is required on scope letter.
- A minimum of two (2) sets of plans shall be submitted. **1 x signed paper copy and 1 x signed digital copy of plans and spec sheets are required for review**. Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review. The following information shall be provided on the plans:
 - a. Indicated scale or suitable dimensions
 - b. Include manufacturer’s data sheets
 - c. Include hood dimensions
 - d. Include duct perimeter
 - e. Include appliance dimensions
 - f. Include piping schematic
 - g. Include floor plans with each room description with each device location
 - h. Occupancy classification
 - i. Indicate nozzle type and number
 - j. Indicate the location and temperature of the fusible links
 - k. Total Flow Points & Pipe Length used and Max allowed
- Signed scope of work letter shall state work will meet IFC, NFPA Carrollton requirements
- A minimum of one (1) set of specifications shall be provided along with digital copy.
- Equipment List with actual items to be used highlighted or marked.
- **Plans shall indicate the interconnection to the building fire alarm system**
- Plans shall indicate the interconnection to the fuel supply shutoff and indicate the type of fuel supply. Shall also state if local bell or monitored horn/strobe installed.
- The title block shall contain the following:
 - a. Location of the installation
 - b. Name and complete address of the business
 - c. Name and complete address of the installing company
 - d. Licensing information
 - e. “Wet” signature of the ECR, EPL, FEL
- Provide a copy of your State of Texas State Fire Marshal's Office license
- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *City of Carrollton Plan Review/Permit Application*
 - c. *Copy of Contractors Texas Department of Insurance License*
 - d. *Manufactures certificate for install*
- Plans approved by the City of Carrollton, Fire Prevention Division, give authorization for construction and/or operation. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- Installation, fabrication or otherwise construction of the system is prohibited without approved plans and permit.
- All installations and/or operations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
- All fire department inspection forms and permits shall be kept in a permit packet on the job site until final inspection.

Aboveground Storage Tanks

These guidelines are to be followed when an aboveground storage tank is moved, installed, or otherwise added, within the City of Carrollton. All aboveground storage tank requirements for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the **2018 International Fire Code**, as adopted and amended by the City of Carrollton **Ordinance No. 3886**.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

Aboveground Storage Tank Requirements

- All Above/Below grade tank installations and/or removals are charged a base fee of \$100.00 per tank.
- Tanks must be installed by a licensed or approved aboveground storage tank installer.
- Approved flame arrestors that meet or exceed API 2028 and venting devices shall be installed in the all vent lines.
- The tank(s) shall be provided with secondary containment. All tanks must meet or exceed UL 142.
- All tank(s), 250 gallons or greater, must meet, or exceed UL 2085.
- When the installation location may be subject to vehicular impact, bollards designed per IAW and IFC shall be installed.
- The tank must display the UL Listed placard.
- A leak detection system must be installed, equipped with on-site audible and/or visual warning devices, as approved by **IFC 2018** and NFPA 30 .
- A spill container having a capacity of not less than 5 gallons shall be provided at each fill connection.
- An overfill prevention system shall be provided for each tank to prevent being filled in excess of 95% capacity. The system must meet the requirements of IFC.
- During fill operation, the system shall:
 - a. Provide an independent means of notifying the person filling that the fluid level has reached 90 percent of tank capacity by providing a tank level gauge marked at 90 percent of tank capacity, or other approved means.
 - b. Automatically shut off the flow of fuel to the tank when the quantity reaches 95 percent of tank capacity.
 - c. Reduce the flow rate to not more than 15 gallons per minute so that at the reduced flow rate, the tank will not overflow for 30 minutes, and automatically shut off flow into the tank so that none of the fittings on the top of the tank are exposed to product because of overfilling.
- The tank fill connection shall be provided with a means for making a direct connection to the tank's vehicle fuel delivery hose so that no fuel is exposed to the open air during the filling operation.
- Anti-siphon devices shall be installed in each pipe connected to the AST, where the piping extends below the level of the tank.
- Emergency shutoffs shall be provided during filling and dispensing operations.
- Relief valves shall be provided.
- Pump dispensing devices shall be equipped with vapor-recovery connections.

(Above Ground Storage Tank Requirements continued)

- Appropriate labeling and signs in accordance with International Fire Code must be provided:
 - a. A permanent sign shall be placed at the fill point for the tank, documenting the filling procedure and tank calibration chart.
 - b. "Smoking or Open Flames Prohibited".
 - c. An approved emergency procedures sign IAW IFC.
 - d. A permanent sign indicating that when filling the tank, parking is prohibited in the fire lane.
 - e. A placard specifically identifying the material therein. The placard shall be IAW and NFPA 704 compliant
 - f. Shall have a permanent sign listing all UL standards it's required to meet.
- Dispensing locations shall limit fuel delivery to 25 gallons and require a manual action to resume, IAW IFC.

Any additional requirements of NFPA 30. and/or 2018 IFC, must also be met. To expedite the plan review and inspection processes, please refer to the information listed below.

Above Ground Storage Tank Plan Submittal Requirements

- The submittal package must include all above requirements and such requirements shall be identified in the submittal package. **2 x paper copies and 1 x digital copy of plans required for review.**
- Provide a written description of the operation of the tank.
- Site plan drawings of the installation location and layout to include:
 - a. Primary and emergency power hookups (if provided)
 - b. All buildings and structures
 - c. Fire lanes and fire hydrants
 - d. Location(s) of other dispensing locations (if remote) and other tanks (if provided).
- A full equipment listing of all tanks, piping, valves, and other equipment.
- Manufacturer documentation for all parts and materials used in the project. This is to include the pumps, relief valves, and tank.
- Plan drawings to include the above requirements shall be submitted for review and approval, **PRIOR** to installation.
- Plan drawings shall show both plan view, section view, and other pertinent information.
- Plan drawings shall be generated by the installing company, and shall not be copied and marked according to installation.
- Provide documentation of tank testing and ability to hold a vacuum. This is in addition to any testing required by the Fire Department.
- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *Carrollton Fire Department Plan Review/Permit Application*
 - c. *Copy of Contractors Texas Department of Insurance License*
- Plans approved by the City of Carrollton, Fire Prevention Division, give authorization for construction. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
 - *No aboveground storage tank(s) or associated equipment may be installed, located, or otherwise manipulated on the site until a complete plan submittal is reviewed and accepted, and a AST Permit is issued for the location.*
 - All installations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
 - All fire department inspection forms and permits shall be kept in a permit packet on the job site until final Inspection.

Underground Storage Tanks

These guidelines are to be followed when an underground storage tank is moved, installed, or otherwise added, within the City of Carrollton City Limits. All underground storage tank requirements for the purposes of this guideline and any other guidelines or requirements of the Carrollton Fire Department shall conform to the [2018 International Fire Code.](#), as adopted and amended by the City of Carrollton [Ordinance No. 3886](#).

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

Underground Storage Tank Requirements

- The tank must be installed by a TECQ licensed underground storage tank installer.
- Approved flame arrestors and venting devices shall be installed in the vent lines. Emergency venting shall meet the requirements of NFPA 30 and IFC that meet or extend API 2028.
- Secondary containment. An approved method of secondary containment shall be provided for underground tank and piping systems.
- The tank must display the UL Listed placard.
- A leak detection system must be installed and provided with approved vapor and liquid detection, equipped with on-site audible and/or visual warning devices with battery backup, as approved by [IFC 2018](#) and NFPA 30.
- A spill container having a capacity of not less than 5 gallons shall be provided at each fill connection.
- An overfill prevention system shall be provided for each tank to prevent being filled in excess of 95% capacity. The system must meet the requirements of IFC.
- During fill operation, the system shall:
 - a. Provide an independent means of notifying the person filling that the fluid level has reached 90 percent of tank capacity by providing a tank level gauge marked at 90 percent of tank capacity, or other approved means.
 - b. Automatically shut off the flow of fuel to the tank when the quantity reaches 95 percent of tank capacity.
 - c. Reduce the flow rate to not more than 15 gallons per minute so that at the reduced flow rate, the tank will not overflow for 30 minutes, and automatically shut off flow into the tank so that none of the fittings on the top of the tank are exposed to product because of overfilling.
- Leak detection. Underground storage tank systems shall be provided with an approved method of leak detection from any component of the system that is designed and installed in accordance with NFPA 30 and as specified by IFC.
- Dry Sumps. Approved sampling tubes of a minimum 6 inches in diameter shall be installed in the backfill material of each underground flammable or combustible liquid storage tank. The tubes shall extend from a point 12 inches below the average grade of
- the excavation to ground level and shall be provided with suitable surface access caps. Each tank site shall provide a sampling sump at the corners of the excavation with a minimum of 4 sumps. Sampling tubes shall be placed in the product line excavation within 10 feet of the tank excavation and one every 50 feet routed along the product lines towards the dispensers, a minimum of two are required.
- The tank fill connection shall be provided with a means for making a direct connection to the tank's vehicle fuel delivery hose so that no fuel is exposed to the open air during the filling operation.

(Underground Storage Tank Requirements continued)

- A permanent sign shall be placed at the fill point for the tank, documenting the filling procedure and tank calibration chart.
- Anti-siphon devices shall be installed in each pipe connected to the UST, where the piping extends below the level of the tank.
- Emergency shutoffs shall be provided during filling and dispensing operations.
- Relief valves, both emergency and normal, shall be provided and shall normally be in the closed position.
- Pump dispensing devices shall be equipped with vapor-recovery connections.
- Thrust blocks, safety straps/deadman's or other suitable means of restraint must be installed for each underground storage tank.
- Thrust blocks, safety straps/deadman's or other suitable means of restraint must be installed at each change in direction of the pipe.
- Appropriate labeling and signs in accordance with IFC must be provided;
 - a. A permanent sign shall be placed at the fill point for the tank, documenting the filling procedure and tank calibration chart.
 - b. "Smoking or Open Flames Prohibited"
 - c. An approved emergency procedures sign IAW IFC
 - d. A permanent sign indicating that when filling the tank, parking is prohibited in the fire lane.
 - e. A placard specifically identifying the material therein. The placard shall be IAW NFPA 704 compliant.
 - f. Shall have a permanent sign listing UL standards its required to meet.
- Dispensing locations shall limit fuel delivery to 25 gallons and require a manual action to resume, IAW IFC
- Any additional requirements of NFPA 30 and 2018 IFC Chapter 57 shall also be met. To expedite the plan review and inspection processes, please refer to the information listed on next page.

Under Ground Storage Tank Plan Submittal Requirements:

- The submittal package must include all above requirements and such requirements shall be identified in the submittal package.
- **3 x sets of plans required. 2 x paper copies and 1 x digital copy of plans and spec sheets are required for review.**
- Provide a written description of the operation and contents of the tank(s) and any associated piping and/or system(s).
- Site plan drawings of the installation location and layout, to include:
 - a. All buildings and structures
 - b. Fire lanes and fire hydrants
 - c. Location(s) of tanks, vent lines, underground product lines, leak detection, dry sumps, and dispensing locations
- A full equipment listing of all tanks, piping, valves, and other equipment
- Manufacturer documentation for all parts and materials used in the project; this is to include the pumps, relief valves, and tank.
- Plan drawings shall show the actual install layout, including all piping and pumps.
- Plan drawings shall show both plan view, section view, and other pertinent information.
- Plan drawings shall be generated by the installing company, and shall not be copied and marked according to installation.
- Provide documentation of tank testing and ability to hold a vacuum. This is in addition to any testing required by the Fire Department.
- ***No underground storage tank(s) or associated equipment may be installed, located, or otherwise manipulated on the site until a UST Permit is issued for the location.***
- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *Carrollton Fire Department Plan Review/Permit Application*
 - c. *Copy of Contractors Texas Commission on Environmental Quality License*
- Any additional requirements set for by the TECQ shall also be met.
- Plans approved by the City of Carrollton, Fire Prevention Division, give authorization for construction. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- ***No underground storage tank(s) or associated equipment may be installed, located, or otherwise manipulated on the site until a complete plan submittal is reviewed and accepted, and a UST Permit is issued for the location.***
- All installations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
- All fire department inspection forms and permits shall be kept in a permit packet on the job site until final inspection.

Access Control Systems

These guidelines are to be followed when a building or facility within the City of Carrollton is provided with an approved access controlled egress door for pedestrian traffic. All access control criteria for the purposes of this guideline shall conform to the **2018 International Fire Code** as adopted and amended by the City of Carrollton **Ordinance No. 3886**.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

Operational Requirements

- A sensor shall be provided on the egress side of the door arranged to detect an occupant approaching. The door shall be arranged to unlock by a signal from this sensor.
- A manual unlocking device shall be located within 5 feet of a secured door and clearly labeled "push to exit". When operated, the doors shall remain unlocked for a minimum of 30 seconds.
- Loss of power to that part of the access control system which locks the doors shall automatically unlock the doors.
- Activation of the building automatic sprinkler system or fire detection system, if provided, shall automatically unlock the doors and stay unlocked until system resets.
- If a full building smoke detection system is not provided, approved smoke detectors shall be provided on both the access and egress sides of doors and in a location approved by the AHJ and NFPA 72. Actuation of a smoke detector shall automatically unlock the door.
- Entrance doors in buildings with occupancy in Group A, B, E or M shall not be secured from the egress side during periods that the building is open to the general public.

Plan Review Submittal Requirements for Access Control Systems

- Provide a written description of the operation of the Access Control/Egress Control System in normal, loss of power, activation of a fire protection system and manual modes
- Three (3) sets of drawings detailing the installation location and layout, including all hookups/integration into building systems (i.e. fire alarm) and wiring.
- **2 x paper copies and 1 x digital copy of plans and spec sheets are required for review**. Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review.
- Submittal shall include a full floor plan for the facility
- A full equipment listing with installed items highlighted or marked.
- Manufacturer documentation for all parts and materials used in the project
- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *Carrollton Fire Department Plan Review/Permit Application*
 - c. *Occupancy classification and load.*

(Plan Submittal Requirements for Access Control Systems.)

- Plans approved by the City of Carrollton, Fire Prevention Division, give authorization for construction and/or operation. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- Installation, fabrication or otherwise construction of the system is prohibited without approved plans and permit.
- All installations and/or operations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.

Inspection Requirements

- Magnetic-Lock/Push Bar Test: Magnetic locks will be tested.
- Backup Power Verification: Test emergency backup power to the access control system, where provided.
- Fail Safe Verification: Loss of power, or function to that part of the access control system which locks the doors shall automatically unlock.
- Connection to Fire Alarm System: Activation of the building fire alarm or automatic sprinkler system, if provided, shall automatically unlock the doors. And remain unlocked until the fire alarm system is reset.
- Manual Operation: Manual operation of the access control system, independent of any automatic function, will be tested.
- Egress: Electric strike, or designated access doors shall be tested to verify free egress.

Access Control Gates

These guidelines are to be followed when a building, facility, residential subdivision, or multi-family dwelling units, within the City of Carrollton, is provided with an approved, entry and exit access control/security gate for vehicular traffic. All access control criteria for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the [2018 International Fire Code](#), as adopted and amended by the City of Carrollton [Ordinance No. 3886](#).

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

Access Control/Security Gates Requirements

- The gate must be sized so as not to obstruct any portion of the fire lane, in any manner, when the gate is fully opened.
- Electrically controlled access gates must be able to open with the Fire Department access key (Knox KS-3502 key switch with dust cover) while the gate is utilizing either primary or secondary power. The gate must stay open until the key switch is returned to normal operation.
- All gates obstructing fire department access, whether in the open or closed position, must be equipped with a means to move the gate to a full open position manually.
- Automatic, radio-controlled traffic control devices (3M Opticom, Firestrobe, or equivalent), keyed to Carrollton Fire Rescue mobile transmitters, shall be provided on all automatic gates that obstruct a fire apparatus roads associated with an R-2 occupancy. As the emergency vehicle approaches the entrance, the gates shall open without the use of an access code, door opener or Knox key switch.
- Gates, in which operation is by manual means only, shall be acceptable. A means to open the gates shall be provided. If gates are to be locked then a Knox Pad lock is required in conjunction with occupants lock. To expedite the plan review and inspection processes, please refer to the information listed on following page.

Plan Submittal Requirements for Access Central Gates

- Provide a written description of the operation of the access control/security gates in normal, emergency, and manual modes
- Site plan drawings of the installation location and layout, including primary and emergency power hookups
- Equipment location drawings of the actual configuration of the access gate(s)
- A full equipment listing
- Manufacturer documentation for all parts and materials used in the project
- Plan drawings shall be generated by the installing company, and shall not be copied.
- Each submittal shall have a completed:
 - a. *Contractors Registration Form (unless previously registered)*
 - b. *City of Carrollton Plan Review/Permit Application*
- Plans approved by the City of Carrollton, Fire Prevention Division, give authorization for construction and/or operation. Final approvals are subject to field verification. Any approval issued by the Fire Prevention Division does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- Installation, fabrication or otherwise construction of the system is prohibited without approved plans and permit
- All installations and/or operations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
- All fire department inspection forms and permits shall be kept in a permit packet on the job site until final inspection.

Inspection Requirements

- Fire Lane Unobstructed
- Back-Up Power Verified
- Knox Key Switch Operation
- Manual Operation
- Opticom Sensor Operation

Inspection Requests and Procedures

The following guidelines shall be used when calling for inspection requests:

- All inspection requests shall be coordinated by dialing (972) 466-3524.
- **Contact our office at least 24 hours in advance of the requested inspection date and time. Note that due to number of inspections your requested inspection may be scheduled more than 24 hours out.**
- The following information must be provided when requesting an inspection:
- City of Carrollton issued permit number.
- Name of project.
- Address of project.
- Fire protection contractor's company name.
- Fire protection contractor contact name and telephone number.
- Type of inspection requested.
- Other information as required, or requested.
- A representative of the requesting company must be present at time of inspection who can effectively communicate and answer questions of Fire Inspector.
- Permit must be kept on the jobsite and presented to the inspector upon request.
- City of Carrollton Fire Prevention Office approved, stamped, and signed plans must be kept on the job site and presented to the inspector upon request. Contractor shop drawings are not considered approved plans.

Required Inspections

Only those pertaining to your particular project will be required.

Fire Sprinkler Underground

- Hydrostatic Test (2-3 hours)
- Flush
- Visual
- Fire Sprinkler Underground Final

Fire Sprinkler Overhead / Aboveground

- 2 hour Hydrostatic Test – and 24 hours Air Test on Dry Fire Sprinkler Systems.
- Visual (precover)
- Fire Sprinkler Final

Fire Alarm

- Audible Device Test
- Visual Device Test
- Initiating Device Test
- Waterflow Test
- Central Station Monitoring
- Device Address Test
- Visual
- Fire Alarm Final

Kitchen Hood

- Air Test
- Utility Shut-off Test
- Manual Pull Station
- Audible/Visual Notification
- Fire Alarm System Connection
- Kitchen Hood Final

Underground Storage Tank

- Line Test
- Anchors In Place
- Diking / Containment
- Leak Detection
- Dry Sumps
- Underground Final

Aboveground Storage Tank

- Line Test
- Tank Label Visible
- Diking/Containment
- Access Control Gates
- Fire Lane Unobstructed

The Inspection Process

The Fire Marshal and/or Fire Inspector may require additional inspections as needed. An approved set of "AS BUILT" plans shall be posted at FACP, the Fire Sprinkler Riser and the Fire Pump in an approved labeled document bin.

Fire Sprinkler Underground (see pg 13 for other details)

1. **Hydrostatic Test.** The test will be at 200 psi for a minimum of three hours. Testing to be from the gate valve to the top of the spigot, no pressure drop or gain allowed.
2. **Visual.** All underground piping and joints must be uncovered and exposed, with labeling of the pipe legible from grade. All thrust blocks will be visually inspected and must be uncovered and exposed to grade.
3. **Flush.** Upon completion of the underground hydrostatic test, the underground piping will be flushed, witnessed by the Fire Department. Pipe shall be covered to prevent movement. The flushing must be completed prior to stacking the riser to the overhead piping.
4. **Fire Sprinkler Underground Final.** Final Fire Department sign-off of completion of all inspections.

Fire Sprinkler Aboveground

1. **Do not stack the riser until the underground flushing has been completed.** Check Fire Sprinkler Underground permit for verification of completion.
2. **Overhead Hydrostatic Test.** Overhead piping will be visually inspected with all joints exposed and labeling of the pipe turned downward. The test will be at 200 psi or 50 psi above it's normal pressure if greater than 150 psi for a **minimum** of two hours. No pressure drop or gain allowed.
A hydrostatic test is required for all new installations and existing system alterations as determined by the Fire Inspector.
A hydrostatic test is required for all tenant finish-outs with twenty or more sprinkler heads added and/or relocated.
3. **Visual.** All overhead piping and joints must be uncovered and exposed, with labeling of the pipe legible from the floor. All hangers will be visually inspected and must be uncovered and exposed to the floor.
4. **Riser Main Flush.** Upon completion of the overhead hydrostatic test, the overhead piping will be drained and witnessed by the Fire Department.
5. **Fire Sprinkler Final.** Final Fire Department sign-off at completion of all inspections.
The inspection shall be conducted when all sheet rock and mill work is completed. The objective of this inspection is to verify that coverage is adequate after the initial hydrostatic test. This will give the Fire Department and the contractor(s) the opportunity to make any changes before there is a request for a C.O. Sprinkler heads must be clean and free from paint, construction debris, or other conditions that would affect the proper operation of the sprinkler heads. Approved Hydraulic Calculation placards shall be installed for final.

(Inspection Process continued.)

Fire Alarm

1. **Initiating Device.** Test all smoke detectors and/or fire alarm initiating devices for Alarm and/or Standby conditions. Sensitivity test may be required on smoke detectors.
2. **Waterflow.** The waterflow alarm will be tested by opening the inspectors test connection. The time delay feature on the flow switch switches must be set to a minimum delay of 60 seconds, but no longer than 90 seconds. Water flow alarm shall sound within 90 seconds.
3. **Central Station Monitoring.** Alarms and/or trouble signals are required to be monitored by a UL listed Central Station. Standard response to contact Fire Department shall be within 3 minutes.
4. **Device Address Test.** All analog or addressable system will have all devices pulled and/or activated. The print out must comply with the devices that were pulled.
5. **Visual.** All devices, wiring, and location of devices will be checked for compliance to the approved plans.
6. **Final.** Final inspection.

Kitchen Hood

1. **Fusible Link & Make-up Air Test.** Fusible link shall be cut to verify exhaust stays on and other turns off.
2. **Utility Shut-off Test.** All utilities connected to the protected cooking devices, shall have automatic shut-off valves.
3. **Manual Pull Station Test.** Operation of the manual pull station shall bring about full system Operation with test cartridge installed for blow off test at same time.
4. **Audible/Visual Notification.** Audible and/or visual notification devices shall be tested.
5. **Fire Alarm Connection.** Automatic fire-extinguishing systems shall be monitored by the building fire alarm system in accordance with NFPA 72.
6. **Final.** Final inspection.

Underground Storage Tank

1. **Line Test.** An air pressure soap test shall be conducted to inspect for leaks at all connections points.
2. **Anchors In Place.** Anchors shall be in place to prevent tank movement.
3. **Diking / Secondary Containment.** Spill containment must be provided and will be evaluated for adequacy
4. **Foundation;** Verify tanks are on a stable and level surface
5. **Leak Detection.** Leak detection devices shall be inspected and tested to verify operability
6. **Dry Sumps.** Must be exposed to verify installation and proper location.
7. **Final.** Ensure that all tanks, lines etc. match the approved plans.

Aboveground Storage Tank

1. **Line Test.** An air pressure soap test shall be conducted to inspect for leaks.
2. **Tank Label.** Visible
3. **Anchors In Place.** Anchors shall be in place to hold tank in place.
4. **Diking / Secondary Containment.** Spill containment must be provided and will be evaluated for adequacy
5. **Foundation.** Verify tanks are on a stable and level surface
6. **Leak Detection.** Leak detection devices shall be inspected and tested to verify operability
7. **Traffic Protection.** Verify bollard placement if applicable
8. **Final.** Ensure that all tanks, lines etc. match the approved plans.

Certificate of Occupancy Inspection

Business Owner

In order to assist the build owners and general contractors in receiving a Certificate of Occupancy for their business, the premises is inspected to identify fire related hazards and conditions. Listed below are the most commonly found fire code violations. The below listed items must be in compliance prior to making an appointment for Fire Department personnel to inspect the facility. An annual Fire Prevention Inspection will also be conducted at the business using these same guidelines.

Exterior Features

- 1) All fire lanes, striped per City of Carrollton standards, shall be completed and in working order prior to construction.
- 2) All fire lanes and access road are clear and unobstructed.
- 3) Fire hydrants shall be completed and in working order prior to construction.
- 4) No accumulation of waste material.
- 5) Fire Department Connection (FDC) unobstructed with Knox FDC plugs in place, and within 100 ft. of a fire hydrant. FDC shall be 2 ½" approved threaded connections only.
- 6) Address on front and rear of building in 10" letters which shall be legible from the street and fire lane.
- 7) Address listing on electric and gas meters and/or disconnecting means.
- 8) Knox Box located at the main entrance and/or riser room.

General

- 1) Storage clearance: unsprinklered -24" to ceiling; sprinklered - 18" to sprinkler heads.(3'- 4' clearance for ESFR sprinkler systems)
- 2) Sprinkler heads clear of paint / overspray.
- 3) Ceiling panels in place.
- 4) Clearance in front of electrical panel (36").
- 5) Occupancy load posted.
- 6) Fire rated assemblies properly constructed and penetrations sealed.
- 7) Extension Cord / multiple adapter with surge protector utilized per code.
- 8) Abatement of electrical hazards.
- 9) Mechanical/electrical/boiler rooms free from storage and combustibles.
- 10) Gasoline stored in proper location / container.
- 11) General housekeeping and precautions against fire.
- 12) Slots in electrical panels must be covered and all electrical receptacles have cover plates.
- 13) Wall and ceiling finishes shall be in accordance with the **2018 International Fire Code**, for all corridors, rooms and enclosed spaces. Field tests on interior finishes may be required.
- 14) The tenant separation wall/demising wall shall be a minimum of 1-hr fire rated construction.
- 15) All fire rated assemblies and fire doors intact.

(Certificate of Occupancy inspection continued.)

Exits

- 1) Accessible means of egress.
- 2) Exits have free egress.
- 3) Exits are not blocked.
- 4) Exit lights operational.
- 5) Emergency lighting operational.
- 6) All exit doors located in the means of egress that are capable of locking or latching shall be operable from the inside without the use of a key, tool or any special knowledge or effort, or provided with approved panic hardware.

Fire Protection Equipment

- 1) Portable fire extinguisher serviced within 1 year or manufactured in current calendar year with proof of purchase attached (receipt).
- 2) Minimum 2A-20BC fire extinguishers per 3000 sq. ft, with a maximum travel distance of 75 ft. from any point within the building.
- 3) Sprinkler system "Green/Blue Tagged" with current inspection, in service and deemed operational.
- 4) Alarm system "Green/Blue Tagged" with current inspection, in-service and deemed operational.
- 5) Kitchen hood/spray booth system "Green Tagged", in-service and deemed operational.
- 6) Other fire protection systems "Green Tagged", in-service and deemed operational.
- 7) Approved plans and permits on-site.
- 8) All devices installed according to plans.
- 9) Fire protection equipment room(s), riser room, labeled and access provided.
- 10) Access control system/gates in-service and deemed operational.
- 11) Arrangement of interior walls and/or drop ceiling does not interfere with the operation of the fire sprinkler system.
- 12) Fire doors unblocked / operational.
- 13) Provide spare sprinklers and wrenches in cabinet.
- 14) All fire department inspection forms and permits shall be kept in a permit packet on the job site until final CO inspection.

1. FIRE SPRINKLER RISER ROOM (FSRR) SHALL BE AT LEAST 8'X8' IF DDCV IS INSIDE ROOM. SHALL BE EVEN LARGER IF A FIRE PUMP IS ALSO INSIDE.
2. NO PART OF DOUBLE DETECTOR CHECK VALVE (DDCV) ASSEMBLY MAY IMPEDE ACCESS THROUGH REQUIRED DOOR TO FSRR
3. DDCV SHALL BE INSTALLED PER INTERNATIONAL FIRE, BUILDING AND PLUMBING CODES AND SHALL BE LISTED FOR VERTICAL USE. ALL ASSEMBLIES SHALL BE INSTALLED IN COMPLIANCE WITH STATE STANDARDS, PLUMBING CODES AND CITY OF CARROLLTON ORDINANCE, CHAPTER 56.
4. 3/4" BYPASS METER SHALL BE WITHIN 12" OF EXTERIOR WALL AND ALIGNED WITH REQUIRED ACCESS HATCH.
5. HATCH SHALL BE BETWEEN 3' & 5' ABOVE GRADE AND EASILY ACCESSIBLE AT ALL TIMES.
6. HATCH SHALL HAVE A CLASP FOR UTILITY CUSTOMER SERVICE TO INSTALL THEIR PADLOCK ON IT. VENDOR MUST PURCHASE LOCK FROM UTILITY CUSTOMER SERVICE PRIOR TO INSTALLATION. UCS WILL PROVIDE A KEY TO THE VENDOR AND RETAIN A KEY FOR CITY PURPOSES.
7. METER NUMBER STAMPED ON BLACK COVER TO METER SHALL BE GIVEN TO UTILITY BILLING AND PUBLIC WORKS.
8. VALVES ON METER SHALL BE SECURED/LOCKED IN THE OPEN POSITION AT ALL TIMES.
9. FIRE DEPT CONNECTION SHALL BE INSTALLED PER IFC, NFPA AND CITY STANDARDS.

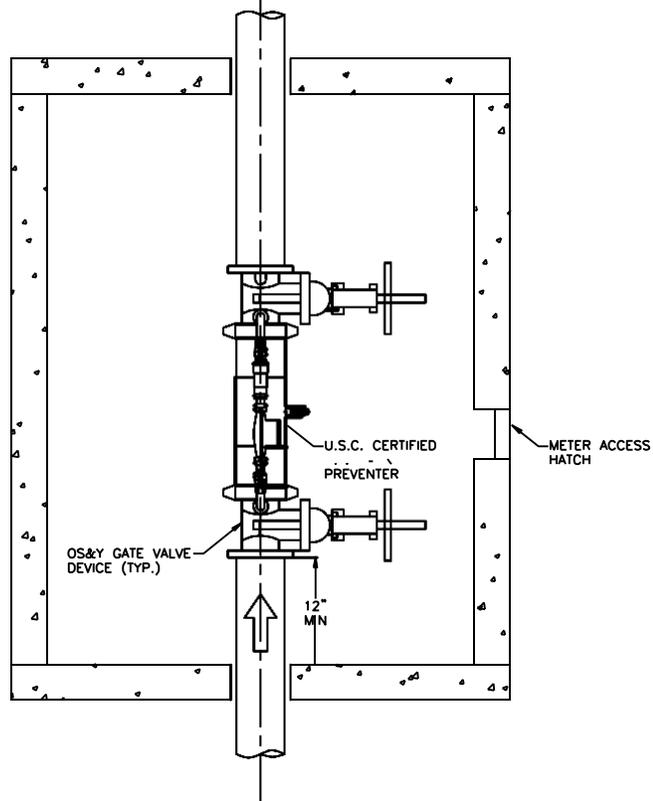
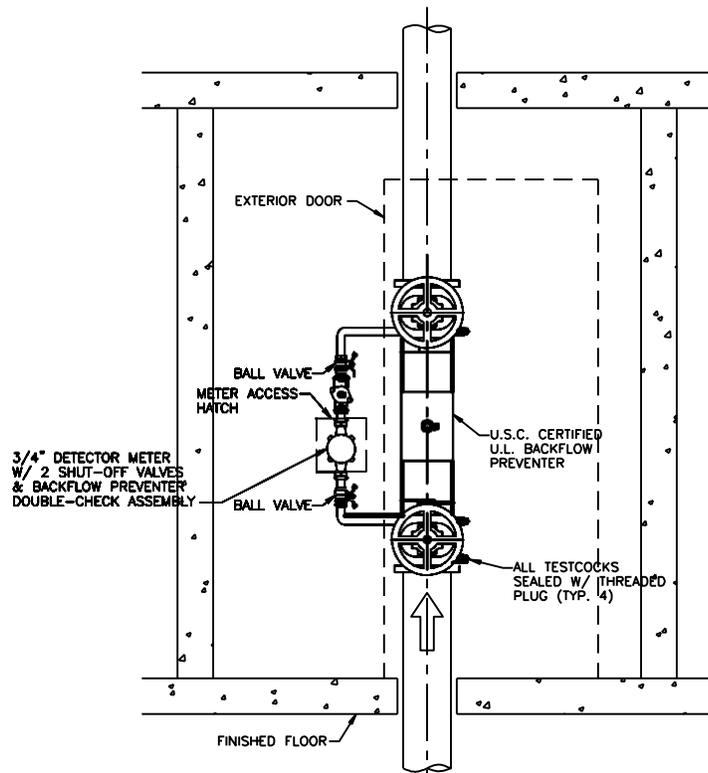
**GENERALDESIGNSTANDARDS
SEWERDETAILS**

SCALE: NTS DATE: 01/2014
SHEET 4 OF 4

METERVAULTINSTALLATION
VERTICALCLOSET



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GENERALDESIGNSTANDARDS
SEWERDETAILS

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METERVAULTINSTALLATION
VERTICALCLOSET



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NOTE:

1. ALL FITTINGS WITHIN THE CITY R.O.W. AND/OR THE UTILITY EASEMENTS SHALL BE RESTRAINED WITH ANCHOR RODS (SEE WATER MAINS) OR RESTRAINING GLANDS (EBAA IRON SALES, INC. SERIES 1100 PV OR EQUAL) AT METER VAULT INSTALLATIONS WHERE PVC PIPE IS USED.
2. ALL CONSTRUCTION SHALL CONFORM TO CITY OF CARROLLTON GENERAL DESIGN STANDARDS.
3. IF THE METER VAULT INSTALLATION EXCEEDS THE EASEMENT LIMITS AS INDICATED AND SHOWN ON THE CONTRACTORS' DRAWINGS ADDITIONAL EASEMENT DEDICATION WILL BE REQUIRED BEFORE METER VAULT INSTALLATION SHALL BE ACCEPTED BY THE CITY OF CARROLLTON.
4. METER VAULT SHALL CLEAR ALL EXISTING UTILITIES BY A MINIMUM OF 12 (TWELVE) INCHES.
5. THE INSTALLATION OF THE METER VAULT SHALL BE WITHIN THE R.O.W. OR WITHIN A DEDICATED UTILITY EASEMENT AS FILED AND APPROVED BY THE CITY OF CARROLLTON ENGINEERING DEPARTMENT.
6. ALL BACK FLOW ASSEMBLIES SHALL BE INSTALLED BY LICENSED PLUMBERS, IRRIGATORS, OR FIRE SPRINKLER TECHNICIANS WHO MEET THE REQUIREMENTS OF THE CITY'S CURRENT PLUMBING CODE. (ALL ASSEMBLIES MUST BE TESTED AFTER INSTALLATION BY AN APPROVED CITY REGISTERED TESTER. TEST REPORTS SHALL BE SUBMITTED TO THE WATER QUALITY/PRODUCTION OFFICE WITHIN 15 DAYS OF THE TEST.)
7. PER ORDINANCE #2336 55-20 MULTIPLE CONNECTIONS: ANY PREMISES REQUIRING MULTIPLE SERVICE CONNECTIONS FOR ADEQUACY OF SUPPLY AND/OR FIRE PROTECTION WILL BE REQUIRED TO INSTALL A BACKFLOW ASSEMBLY ON EACH OF THE ADDITIONAL SERVICE LINES TO THE PREMISES. THE TYPE OF ASSEMBLY WILL BE DETERMINED BY THE DEGREE OF HAZARD THAT OCCURS IN THE EVENT OF AN INTERCONNECT BETWEEN ANY OF THE BUILDINGS ON THE PREMISES.

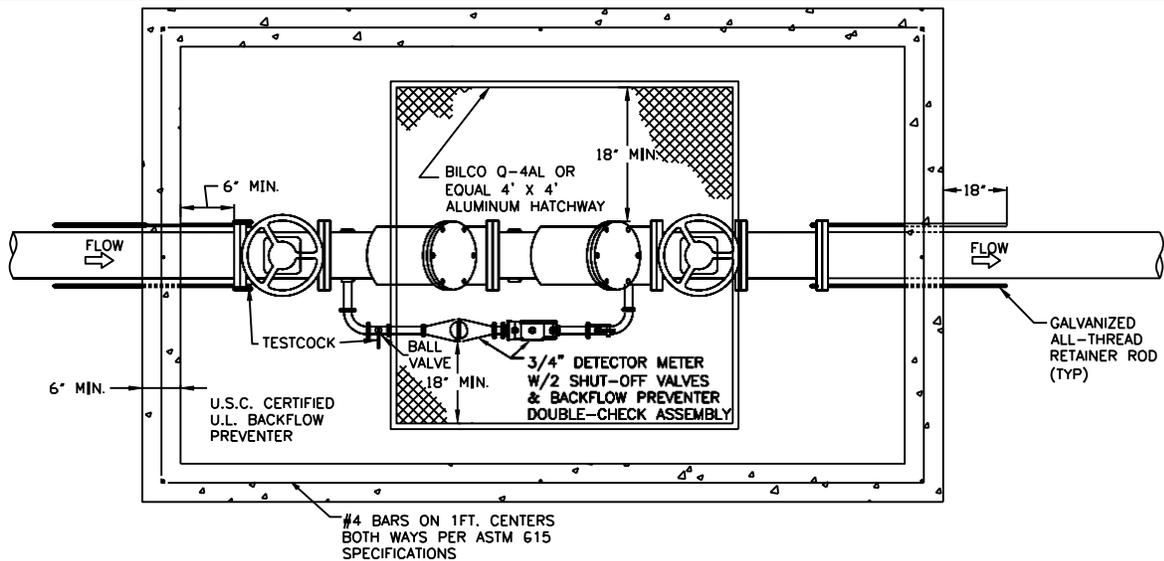
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WATERDETAILS**

SCALE: NTS DATE: 01/2014
SHEET 2 OF 4

METERVAULTINSTALLATION



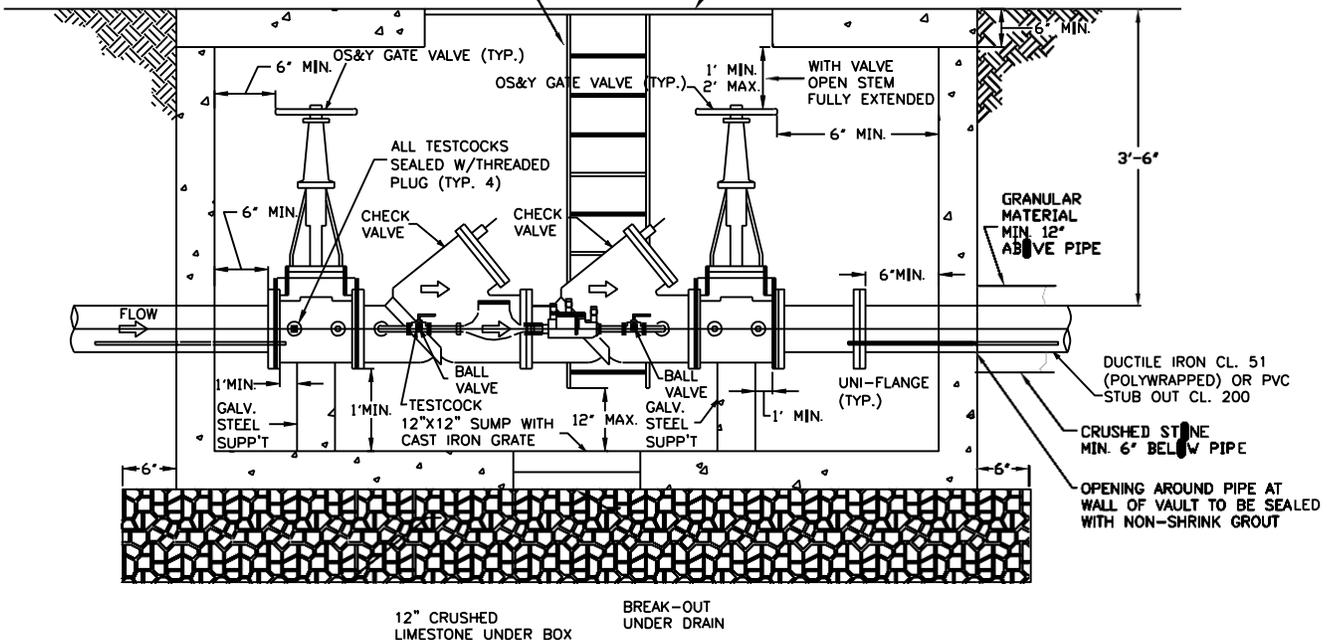
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DEPARTMENT



PLAN VIEW
N.T.S.

ACCESS LADDER SHALL BE CONSTRUCTED OF 1/2" X 2 1/2" BAR SIDE RAILS WITH 1" DIA. STEEL RUNGS @12" CENTERS. ALL MEMBERS SHALL BE WELDED WITH LADDER TO BE HOT DIPPED GALV. AFTER FABRICATION. BOLT LADDER TO VAULT WALL AND INSERT ANCHORS.

MIN. 48" X 48" OPENING WITH 1/4" THICK ALUMINUM (NON-SKID) PLATE DOOR WHOSE FRAME IS RIGIDLY AFFIXED TO THE CONCRETE DECK. A HANDLE WITH A LOCKABLE DEVICE IS REQUIRED (BILDO DOORS OR EQUAL).



ELEVATION
N.T.S.

GENERALDESIGNSTANDARDS
WATERDETAILS

METERVAULTINSTALLATION

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