

CARROLLTON FIRE RESCUE

FIRE MARSHAL'S OFFICE



CONSTRUCTION GUIDE FOR GENERAL CONTRACTORS

2022 Edition

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CARROLLTON FIRE RESCUE

Fire Marshal's Office

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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 be registered with the City of Carrollton Building Inspections Dept.
2. All inspections require a permit and a set of approved plans on the job site.
 - ***The general contractor (GC) shall verify that all contractors working on their site have signed plans prior to beginning any work.***
 - Failure to have approved drawings and permit on-site may result in a citation to the GC and contractor in addition to failed inspections and re-inspection fees.
3. **Inspection requests and scheduling will be coordinated directly between the Fire Marshal's Office and the responsible parties. Inspections involving fire and life safety systems may only be requested by the contractor installing the system(s).**
4. The Fire Inspector will provide written or e-mailed results to the contractor who filed the permit after each inspection.
5. The contractor is responsible for ensuring that the system(s) being installed or serviced comply with all current locally adopted codes – including, but not limited to the 2021 International Fire Code (IFC), NFPA Standards, & Carrollton Ordinance #4044.
6. Final approvals are subject to field verification.
7. 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.
8. All installations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
9. All plan review and inspection process steps must be followed. Deviation from the requirements may 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 fifteen (15) business days 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

The City of Carrollton has adopted and amended the **2021 International Building Code (IBC)** and **International Fire Code (IFC)**. City of Carrollton **Ordinance #4044**, which adopted the **2021 ICCs** and our local amendments, is available on the City of Carrollton website. The Fire Marshal's Office does not review plans for compliance with the Americans with Disabilities Act (ADA) or the Texas Accessibility Standards.

The **2021 IFC** references specific NFPA codes for additional guidance. Below is a list of the most commonly referenced codes:

- International Fire Code, 2021 Edition
- International Building Code, 2021 Edition
- National Electrical Code / NFPA 70, 2020 Edition
- NFPA 13, 13D & 13 R 2019 Edition
- NFPA 14, 2019 Edition
- NFPA 17 & 17A, 2021 Edition
- NFPA 25, 2020 Edition
- NFPA 30, 2021 Edition
- NFPA 33, 2021 Edition
- NFPA 72, 2019 Edition
- NFPA 92, 2021 Edition
- NFPA 96, 2021 Edition
- NFPA 204, 2021 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 building addresses and suite numbers
- A complete floor plan must be submitted to the Fire Marshal for numbering
- Address numbers must be legible from the street, rear alleyway/access or fire lane
 - Building numbers shall be **illuminated** and of a **color contrasting background**
 - **Building numbers** shall be **minimum 10 inches tall** (min. 0.5 inch stroke)
 - **Suite numbers** shall be **minimum 4 inches tall** placed on/above **ALL DOORS**
- Alphabetic suite numbers are not permitted.
- Address and/or suite number must be provided on gas and electric meters and/or disconnecting means.

FINISH-OUT/BUILDING ALTERATION FAQ

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.

The questions/statements below are commonly overlooked during tenant finish-outs:

1. Does the building have an existing fire sprinkler system or fire alarm system?
 - If so, are the annual inspections current on all fire and life safety systems
2. Will any type of special protection system be required? (*i.e.*, smoke ventilation/exhaust, fire alarm, fire sprinkler, kitchen hood, clean agent suppression or storage tank)
3. All EXIT doors will have and illuminated EXIT sign with working battery back-up
4. All exit doors located in the means of egress shall be operable from the inside without the use of a key or any special knowledge or effort. (**NO Double-Cylinder Key Locks**)
5. Fire extinguishers shall be installed per NFPA 10.
6. Additional criteria as required by the Fire Marshal.

KNOX BOX REQUIREMENTS

A Knox-Box is **required** on all buildings with fire sprinklers, fire alarm systems, access control and as required by the fire code official.

- **Knox-Box 3200** series for Single Tenant buildings less than 10,000 sq. feet
- **Knox-Box 4400** series w/Single Key for Multi-Tenant buildings, buildings >10,000 sq.ft and any building with access control.
- Installed 5 feet above grade at main entrance and/or fire riser room exterior door
- Boxes shall be sealed weather tight to the building.
- All other KNOX requirements can be found in their respective construction guides.

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 at all times during construction. Numbers shall be clearly marked and posted so as to be visible from the road.
- Exits and exit corridors shall remain unobstructed during all phases of construction
- Adequate removal of debris shall be performed daily 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**.
- 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

****PERMANENT FIRE LANE MUST BE IN PLACE PRIOR TO VERTICAL CONSTRUCTION****

Fire Apparatus Access Road Specifications

- Minimum width 24'
- Minimum vertical clearance 14'
- Maximum cross slope 3% / Maximum crest 10% / Maximum slope 5%
- Must have access to 3 sides minimum (All buildings equipped w/ fire sprinklers)
- Within 150' of all parts of the building
- Fire Lanes shall be maintained accessible during construction.

Fire Apparatus Access Road 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, striping shall be on both the vertical and horizontal faces of the curb.

Fire Apparatus Road Sign Requirements:

- Shall be 12" wide x 18" tall, printed on solid aluminum substrate (min. 0.063 inch thick)
- Shall read, "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING"
- Red letters and borders painted on a white background (2" lettering minimum)
- Permanently affixed to a stationary post and the bottom of the sign shall be six feet, six inches (6'6") above finished grade.
- Shall be spaced not more than fifty feet (50') apart.
- Installed on permanent buildings or walls or as approved by the Fire Marshal.
- **These are in addition to the painted Fire Lanes above when required.**

REQUIREMENTS FOR NEW ELEVATOR INSTALLATIONS

All newly installed or replaced elevators shall meet all pertinent codes as adopted and amended by City of Carrollton **Ordinance No. 4044**.

- A **1400 series Knox Elevator/Lobby Key Box** shall be mounted at each elevator bank at lobby nearest to lowest level of Fire Dept. access.
- Knox-Box Shall be mounted 5 feet above finished floor to the right side of elevator bank.
- Occupant shall supply 2 x Firefighter elevator recall keys and min. 1 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.

TYPES OF REQUIRED SYSTEM TESTS

- Fire Sprinkler and Standpipe systems
- Fire Alarm systems
- Carbon Dioxide / Dry Chemical / Clean Agent systems
- Smoke Detection systems
- Access Control & Delayed Egress systems (Mag-Locks, electric strikes, etc.)
- Commercial kitchen hood extinguishing system
- Automatic vehicle access 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 fire permit inspections shall be scheduled by the applicant, through the plan reviewer listed on the individual permit. *****

THE INSPECTION PROCESS

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

Fire Sprinkler Underground Inspections

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 Inspections

- **Do not stack the riser until the underground flushing has been completed.**
 - Check Fire Sprinkler Underground permit for verification of completion.
- **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.
- **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.
- **Riser Main Flush.** Upon completion of the overhead hydrostatic test, the overhead piping will be drained and witnessed by the Fire Department.
- **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.

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 printout 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.

Underground Storage Tank

1. **Line Test.** An air pressure soap test shall be conducted to inspect for leaks at all connection 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.

CERT. OF OCCUPANCY - FIRE MARSHAL FINAL INSPECTION

Business Owner/General Contractors

In order to assist business owners and general contractors in receiving a Certificate of Occupancy, the premises is inspected to identify fire related hazards and conditions. Listed below are the most commonly found fire code violations. The items listed below must comply prior to making an appointment for Fire Department personnel to inspect the facility.

Exterior Features

- Address on front and rear of building in 10" letters shall be legible from street & fire lane.
- Suite # or address is required on all electric/gas meters and/or disconnecting means.
 - Minimum 4 inch numbers on/above ALL DOORS (front, back and sides)
- All fire lanes shall be in working order and striped per City of Carrollton standards.
- All fire lanes and access roads shall be kept clear and unobstructed.
- Fire hydrants shall have clear access and be in working order.
- 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.
- Knox Box located at the main entrance and/or riser room.
 - 3200 Series for Single Tenant buildings
 - 4400 Series Vault (Single Key) for multiple tenant buildings

General

- Clearance above stored materials:
 - Unsprinkled buildings – All items shall remain 24 inches below the ceiling
 - Sprinkled - All items shall remain 18" below the bottom of sprinkler heads
 - (3'- 4' clearance for ESFR sprinkler systems)
- ALL ceiling tiles in place.
- Three (3) foot clearance to and around all fire and electrical equipment.
- Maximum Occupancy posted in all Assembly Occupancies (Permanent & Durable sign)
- Fire rated assemblies properly constructed and penetrations sealed.
- Abatement of electrical hazards.
- Mechanical/electrical/boiler rooms free of combustible storage & properly labeled.
- Gasoline stored in proper location / container.
- General housekeeping and precautions against fire.
- Slots in electrical panels must be covered & all electrical receptacles have cover plates.
- Wall and ceiling finishes shall be in accordance with the 2021 IFC, for all corridors, rooms and enclosed spaces. Field tests on interior finishes may be required.

Exits

- All EXIT pathways shall be unobstructed and exit doors open freely and properly
- All EXIT doors will have and illuminated EXIT sign with working battery back-up Emergency lighting operational.
- 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

- Portable fire extinguisher serviced and tagged within the last 12 months.
- Minimum 2A-20BC fire extinguishers per 3000 sq. ft
 - Maximum travel distance of 75 ft. from any point within the building.
- Fire Sprinkler system “Blue Tagged” within 12 months. (Yellow/Red Tags not permitted)
- All Fire Sprinkler heads must be free of dust and paint overspray
- Fire Alarm system “Blue Tagged” within 12 months. (Yellow or Red Tags not permitted)
- Kitchen hood/spray booth system properly tagged, in-service and deemed operational.
- Other fire protection systems “Green Tagged”, in-service and deemed operational.
- All devices installed according to plans.
- Fire protection equipment room(s), riser room, labeled and access provided.
- Access control system/gates in-service and deemed operational.
- Arrangement of interior walls and/or drop ceiling does not interfere with the operation of the fire sprinkler system.
- Fire doors unblocked / operational.
- All fire rated assemblies and fire doors intact.
- Provide spare sprinklers and wrenches in cabinet.
- All fire department inspection forms, approved plans and permits shall be kept in a permit packet on the job site until final CO inspection.