



Fire Protection System Permits Policy


[Revised 08/29/2017]

**This policy is subject to revision – download the latest version from: www.cor.net/fire/permits.
SUBMITTALS THAT DO NOT COMPLY WITH THIS POLICY WILL NOT BE APPROVED.**

Significant new items are in red. This list does not include all requirements. Ordinance 4186 amends and adopts the 2015 International Fire Code [www.cor.net/fire/permits]. If you have questions, please contact the Richardson Fire Marshal's Office.

Plans are reviewed in the order submitted. Our goal is complete and accurate review of all applications within ten (10) business days.

GENERAL REQUIREMENTS:

1. **PERMIT IS REQUIRED** - Unless exempt or otherwise approved, a permit shall be obtained before commencing construction or installation regulated by the 2015 International Fire Code, §105.7 *Required Construction Permits*:
 - A. Use only the currently published *Fire Protection System Permit Application*, available at www.cor.net/fire/permits;
 - B. Separate permit is issued for each system type, or phase to be separately inspected or approved [clearly identify each phase];
 - C. Separate Permit Application is required for each address/suite, and for each license type under which the work is to be done;
 - D. Permits and Applications may be discarded after 30-days from notification - resubmittal will be necessary.
2. **EXEMPTIONS** - [System repairs, or as specifically approved, or as follows]:
 - Fire Alarm and Detection - Fewer than 5 notification appliances affected, firmware/software updates, replacing boards of the same model with chips utilizing the same or newer firmware .. No permit, submittals, or acceptance test required;
OR, when ONLY adding new supervision of a hood suppression system to an existing fire alarm panel - licensee must be present during hood suppression acceptance testing to test the supervision.
 - Fire Sprinkler [incl. "turn-up/down"] – 20 or fewer sprinklers affected No permit, submittals, or acceptance test required.
3. **PERMIT AND INSPECTION FEE** - [Resolution 08-14]:
 - A. Permit fee is 1% of the total installed cost of each system, with a minimum fee of \$60.00 per system;
 - B. Permit fees are payable upon issue, by check to "City of Richardson", or credit card. Permit fees are not payable in advance;
 - C. **For work commenced prior to obtaining a permit, the permit fee will be doubled;**
 - D. First inspection and one reinspection are included in permit fee - for each subsequent inspection, a fee of \$100 will be assessed.
4. **INSPECTIONS:**
 - A. Work that is exempt from permitting does not require an inspection or submittals, except as specifically noted;
 - B. **Complete and check all work [pre-test] before requesting inspections – all conditions must be met;**
 - C. Close-out documents: Submit PRIOR to requesting "final" inspection [see Plan Review Notes for each permit];
 - D. **Permit holder shall request inspections by calling (972) 744-5750, at least one full business day in advance. Fire Marshal's Office will try to accommodate, but cannot guarantee availability for the requested time;**
 - E. Licensed personnel familiar with the specific work under each permit [installer, designer, etc...] must be present during inspection.
5. **SUBMITTALS** - [Application, plans, details, data sheets, calculations, etc...]:
 - A. **ELECTRONIC:** USB drive or CD/DVD, with **unprotected .PDF files, ONLY**, with a **PAPER Application**; OR,
PAPER: 1 SET, UNSTAPLED, UNBOUND [clip only], and LOOSELY ROLLED plans with *Application*.
 - B. Submit ONLY documents applicable to the permit application [delete unrelated files from media] – Submit ONLY .PDF format files;
 - C. Submittals shall comply with the 2015 International Fire Code, §105.4 *Construction Documents*;
 - D. Const. documents shall be prepared, stamped, signed [digital ok*], & dated [after revision], by a licensed design professional:
**A digital code that can be attached to an electronically transmitted message that uniquely identifies the sender... To be effective, digital signatures must be unforgeable .*
 - E. Plan Review Notes, and approved or marked-up plans, will be returned electronically, as a .PDF, via email, when possible.
6. **PLANS:**
 - A. Scope and summary description of the work to be permitted shall be included on the first page of the plans, or in a cover letter:
 - 1) Indicate Use(s), Occupancy, and hazard Classification(s) of area(s) affected – see International Building Code, Chapter 3;
 - 2) Indicate Construction Type(s) of area(s) affected – see International Building Code, Chapter 6;
 - 3) Indicate if the building is Un-sprinklered, Partially Sprinklered [describe], or Fully Sprinklered.
 - B. Specify on the plans the correct codes and standards under which the system is to be reviewed – including, but not limited to:
 - 1) "2015 International Fire Code, as amended and adopted by the City of Richardson";
 - 2) Latest effective editions of applicable NFPA Standard(s) – e.g. "2016 NFPA 72", "2016 NFPA 13", "2017 NFPA 96", etc...
 - C. Exceptions used in the design must be specifically identified by code or standard, and section number;
 - D. Plans shall be drawn in a clearly legible, and professional manner;
 - E. North shall be indicated, and plans shall be to drawn to scale – a graphic scale shall be indicated, e.g.: 
 - F. Unique room names and/or numbers, and room use shall be indicated for every room;
 - G. A legend identifying each symbol, component, make/model number, SIN [if applicable], & quantity shall be provided;
 - H. Show ceiling height(s) & ALL walls, doors, partitions, furnishings, equipment and structural elements that affect the system design;
 - I. DO NOT SHOW Systems, furnishings, and other elements that do not affect the system design.
7. **VARIANCES:**

A variance is required for systems that do not specifically comply with the requirements of the applicable Codes and standards.
"Variance Application" form is available at www.cor.net/fire/permits.

8. **FIRE ALARM AND EMERGENCY COMMUNICATION SYSTEMS [NFPA 72, 2016 EDITION]:**

A. **Audible Notification:**

- 1) Submit *documentation of the design sound pressure levels for the specific various coverage areas* [NFPA 72 18.4.1.4.5];
- 2) Fire alarm signal shall be 3-pulse temporal pattern [including existing systems] unless otherwise approved in advance;
- 3) Audible appliances provided for sleeping areas to awaken occupants shall comply with NFPA 72 18.4.5.3 [*Low-frequency*].

B. **Visible Notification:**

- 1) Specify where “corridor-spacing” is applied [NFPA 72 §18.5.5.5 Spacing in Corridors].

C. **Smoke detectors** shall not be installed before all clean-up is complete, unless otherwise required [NFPA 72 §17.7.1.11.3];

D. **Where Sprinklered** [ord. 4186]:

- 1) FACP shall be located at the fire sprinkler riser unless otherwise approved;
- 2) Exterior, weatherproof, “waterflow-only” A/V, min. 75cd, shall identify the primary access to the fire sprinkler riser room;
- 3) Dedicated Function Fire Alarm Control Unit *NFPA 72 23.8.5.5.1 ...waterflow alarm-initiating devices shall be connected to a dedicated function fire alarm control unit designated as “sprinkler waterflow and supervisory system” and permanently identified on the control unit and record drawings. Exception: Where waterflow alarm-initiating devices are connected to a building fire alarm system...*

E. **Other Submittal Requirements:**

- 1) One fire alarm control panel is permitted per building, unless specifically approved otherwise;
- 2) DACT systems shall use one telephone line and one of the following [NFPA 72 26.6.4.1.4 Transmission Channels]:
 - a) One-way private radio alarm system;
 - b) Two-way RF multiplex system;
 - c) Transmission means complying with 26.6.3 [A single transmission path (26.6.3.3) is prohibited.]Exception: DACT used as an interface module to IP, Cellular, Radio, or other approved transmission method. [See A.26.6.3]
- 3) Submit riser diagram for every affected circuit [show each device in each circuit];
- 4) Show point-to-point wiring and end-of-line [EOL] resistors.
- 5) Submit battery calculations for each affected power supply, and battery calculation worksheets for each affected circuit;
- 6) Submit data-sheets for each affected device & significant components [e.g. – FACP, PS, Detector, A/V, Communicator, etc...];
- 7) **Highlight** in the data sheet each SPECIFIC current draw entered in the calculations [ONLY those values actually used]:
 - a) The designer confirms that the correct values are input;
 - b) Where multiple models or settings are available, identifies the correct values;
 - c) Expedites review.

G. **Close-Out Documents - PRIOR** to requesting “final” inspection [email .PDFs to firepermits@cor.gov, with permit # in subject line]:

- 1) Duct-smoke detector differential pressure test report, and manuf. instructions describing the acceptable range, if applicable;
- 2) *Fire Alarm Installation Certificate* [<http://www.tdi.texas.gov/forms/form18alarm.html>];
- 3) As-built record drawings marked “AS-BUILTS” when changed from approved plans, or when otherwise requested.

F. **Inspections** [see page 1, sec. 4]:

- 1) **Complete and check all work [pre-test] before requesting inspections – all conditions must be met** [NFPA 72 Table 14.4.3.2];
- 3) Measure and record levels throughout protected area using an ANSI S1.4a compliant sound level meter – with all walls, ceilings, floors, windows, and doors installed. Use ONLY dBA scale and “fast” time-weighted settings;
- 4) “Waterflow-only” alarm shall activate ONLY upon 45-60 seconds of constant waterflow through smallest sprinkler orifice;
- 5) *Battery Marking, Circuit Identification, and Power Supply for Remotely Located Control Equipment* shall comply with NFPA 72:
10.6.5.2.1 The location of the branch circuit disconnecting means shall be permanently identified at the control unit.
10.6.5.2.2 The system circuit disconnecting means shall be permanently identified as to its purpose. Methods for marking shall be permitted to include, but not be limited to, one of the following:*
 - (1) “FIRE ALARM” for fire alarm systems
 - (2) “EMERGENCY COMMUNICATIONS” for emergency communications systems
 - (3) “FIRE ALARM/ECS” for combination fire alarm and emergency communications systems*10.6.5.2.3 For fire alarm and/or signaling systems, the circuit disconnecting means shall have a red marking.*
10.6.5.4 Circuit Breaker Lock. Where a circuit breaker is the disconnecting means, an approved breaker locking device shall be installed.
10.6.8.2 The location of any remotely located power supply shall be identified at the master control unit.
10.6.10.1.1 Batteries shall be marked with the month and year of manufacture using the month/year format.
10.6.10.1.2 Where the battery is not marked with the month/year by the manufacturer, the installer shall obtain the datecode and mark the battery with the month/year of battery manufacture.
- 5) Duct smoke detectors shall comply with *Duct Smoke Detectors Policy*, at www.cor.net/fire/permits;
 - a) Duct smoke detectors shall be tested per *Duct Smoke Detectors Policy*, the manufacturer’s instructions, and NFPA 72;
 - b) Duct smoke detectors shall initiate a “supervisory” condition and required smoke control functions, only.

9. **FIRE SERVICE MAINS/FIRE HYDRANTS/FIRE DEPARTMENT CONNECTIONS [NFPA 24, 2016 edition]:**

A. **Comply with Fire Service Mains, Fire Hydrants, and Fire Department Connections**, at www.cor.net/fire/permits;

B. **Close-Out Documents - PRIOR** to requesting “final” inspection [email .PDFs to firepermits@cor.gov, with permit # in subject line]:

- 1) City of Richardson *Backflow Prevention Assembly Test and Maintenance Report* [www.cor.net/fire/permits], if applicable:
A copy must also be attached to the assembly in a watertight container.
- 2) *Contractor’s Material and Test Certification for Underground Piping* [www.tdi.texas.gov/forms/form18sprinkler.html];
- 3) As-built record drawings marked “AS-BUILTS” when changed from approved plans, or when otherwise requested.

C. **Inspections** [see page 1, sec. 4]:

- 1) **Complete and check all work [pre-test] before requesting inspections – all conditions must be met;**
- 2) **FLUSHING OF FIRE SERVICE MAINS SHALL BE WITNESSED BY FIRE MARSHAL’S OFFICE;**
- 3) Schedule visual inspections with the hydrostatic tests – conduit may be “center-loaded”, with correct embedment material.

10. **FIRE SPRINKLER SYSTEMS** [NFPA 13 2016 edition, 13R 2016 edition, NFPA 13D 2016 edition, NFPA 20 2016 edition]:

A. **Submittals:**

- 1) Submit copy of the original waterflow test report: *Waterflow tests shall be conducted within one year of submittal. The exact location of the static/residual hydrant and the flow hydrant shall be indicated on the design drawings. Indicate the dominant water tank level at the time of the test and the maximum and minimum operating levels of the tank, as well, or identify applicable water supply fluctuation* [COR ordinance];
- 2) Submit hydraulic calculations for all new systems, or whenever calculated changes occur in existing systems: Adjust static and residual data to minimum water supply level in tower [.434 psi/ft elevation].
- 3) Safety factor is minimum 10psi;
- 4) Indicate hazard classification(s) for sprinkler design areas;
- 5) Identify on the plans each sprinkler where maximum static or flowing pressure, applied other than through the Fire Department Connection, exceeds 100 psi, or confirm that this condition does not occur;
- 6) Indicate quantity and SIN of each affected head;
- 7) Submit **1st page** of cut-sheets for each affected sprinkler & significant components [e.g. – DCVA, pre-action/dry- valves, etc...];
- 8) **“Pre-action” systems:** Identify the ACR licensee responsible for testing the Fire Alarm component of the system;
- 9) **Backflow Protection must comply with TCEQ publication RG-345 Backflow Protection on Water-Based Fire Protection Systems** [www.tceq.texas.gov/publications/rg/rg-345.html]:

Table 1. Minimum Recommended Backflow Protection

Type of System	Minimum Requirements for a New Installation	Minimum Requirements for an Existing System
2 dry-pipe pressurized and pre-action fire suppression systems (dry and pre-action)	double check valve assembly ¹	an acceptable form of directional flow ² control until system is substantially altered * ¹
3 other closed pipe fire protection system	compare with a similar configuration and use the same requirement ¹	compare with a similar configuration and use the same requirement for existing systems ¹
4 residential, single-family fire sprinkler system (separate piping from domestic system) less than 1.5 inch diameter	double check valve assembly ¹	
5 residential, single-family fire sprinkler system (integrated piping with domestic system) less than 1.5 inch diameter and material approved for potable water	none ¹	
6 wet-pipe fire sprinkler systems (wet) or a wet standpipe hose system	double check valve assembly, double check detector assembly or air gap ¹	an acceptable form of directional flow control ² that contains no lead until system is substantially altered * —a directional flow control ² containing lead should be upgraded with a double check valve assembly by a licensed sprinkler contractor.
7 any system above in which a chemical additive is used, injected, or may possibly be injected	reduced-pressure principle backflow prevention assembly or air gap	retrofit with a reduced-pressure principle backflow prevention assembly or air gap by a licensed sprinkler contractor
8 segment of system filled with a non-freezing agent (antifreeze loop)	reduced-pressure principle backflow prevention assembly where segment starts	reduced-pressure principle backflow prevention assembly where segment

Source: Compilation from the American Water Works Association (AWWA) Recommended Practices for Backflow Prevention and Cross-Connection Control, Manual M14, 3rd edition

¹ Where there is a health hazard or where chemicals are likely to be added, use the recommendations for item number 7.

² An example of a directional flow control device is a listed alarm check valve, or a listed regular check valve, maintained in accordance with the requirement of the National Fire Protection Association, NFPA 25.

- a) * “Substantially altered” means more than 20 heads are affected or other system components are changed;
- b) **When Minimum Recommended Backflow Protection is indicated in the Table above:**
 - i. Identify and document how the existing system complies with Table 1:
 - Submit a current City of Richardson *Backflow Prevention Assembly Test and Maintenance Report*; or,
 - Submit details with the submittals, indicating type, make, model and location of the existing protection.
 - ii. OR, submit a separate Application for installation of backflow protection complying with Table 1.
- c) *Retroactive Installation ...a thorough hydraulic analysis, including revised hydraulic calculations, new fire flow data, and all necessary system modifications to accommodate the additional friction loss, shall be completed.* [NFPA 13 §8.17.4.5.2].

- B. **Hydraulic Information & General Information signs** shall comply with NFPA 13 Section 25.5 and 25.6 - “Permanently Marked” includes stamped or engraved metal, or other pre-approved methods, but does NOT include markers or labels;
- C. **List of sprinklers** installed in the property shall be posted in the sprinkler cabinet [list shall comply with NFPA 13 §6.2.9.7.1];
- D. **Drain discharge** shall be to a location where damage will not occur – use splash blocks, etc., if necessary to protect landscaping;
- E. **Close-Out Documents - PRIOR** to requesting “final” inspection [email .PDFs to firepermits@cor.gov, with permit # in subject line]:
 - 1) City of Richardson *Backflow Prevention Assembly Test and Maintenance Report* [www.cor.net/fire/permits] if applicable: **A copy must also be attached to the assembly in a watertight container.**
 - 2) *Contractor’s Material and Test Certification for Above Gound Piping* [www.tdi.texas.gov/forms/form18sprinkler.html];
 - 3) As-built record drawings marked “AS-BUILTS” when changed from approved plans, or when otherwise requested.
- F. **Inspections** [see page 1, sec. 4]:
 - 1) **Complete and check all work [pre-test] before requesting inspections – all conditions must be met;**
 - 2) Schedule visual inspections with the hydrostatic tests, when applicable, prior to installation of ceilings or other obstructions.

11. **STANDPIPE SYSTEMS – CLASS I** [NFPA 14, 2016 edition] – In addition to the applicable requirements in SPRINKLER SYSTEMS, on page 3:
- A. **Location of Class I standpipe hose connections** [IFC 905.4]. *Class I standpipe hose connections shall be provided in all of the following locations:*
1. *In every required exit stairway, a hose connection shall be provided for each story above and below grade plane. Hose connections shall be located at an intermediate landing between stories, unless otherwise approved by the fire code official.*
 2. *On each side of the wall adjacent to the exit opening of a horizontal exit.*
Exception: *Where floor areas adjacent to a horizontal exit are reachable from an interior exit stairway hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480mm) of hose, a hose connection shall not be required at the horizontal exit.*
 3. *In every exit passageway, at the entrance from the exit passageway to other areas of a building.*
Exception: *Where floor areas adjacent to a horizontal exit are reachable from an interior exit stairway hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the horizontal exit.*
 4. *In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an exit passageway or exit corridor to the mall. In open mall buildings, adjacent to each public entrance to the mall at the perimeter line and adjacent to each entrance from an exit passageway or exit corridor to the mall.*
 5. *Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), each standpipe, unless otherwise approved, shall be provided with a two-way hose connection located on the roof or at the highest landing of an exit stairway with stair access to the roof provided in accordance with Section 1011.12.*
 6. *Where the most remote portion of a nonsprinklered floor or story is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or story is more than 200 feet (60 960 mm) from a hose connection, the fire code official is authorized to require that additional hose connections be provided in approved locations.*
 7. *When required by this Chapter, standpipe connections shall be placed adjacent to all required exits to the structure and at two hundred feet (200') intervals along major corridors thereafter, or as otherwise approved by the fire code official.*
- B. **Identification and clearance** [IFC 905.4.3]. *A minimum 36-inch clear width shall be provided in front of standpipe hose connections, and shall extend from the centered connection to the aisle or driveway from which it can be accessed. The clear width shall be permanently marked in an approved manner, by red chevron on contrasting background on the finished floor surface. An approved method to prevent obstruction of the marked area shall be provided. Vehicle impact protection complying with Section 312 shall be provided in garages and other locations where vehicles are operated.*
- Standpipe hose valve connection locations shall be clearly identified in the following manner:*
1. *When the connection is on or adjacent to a column, an 18-inch red band shall mark all visible sides of the column. The band shall be as high as practical, but no more than 10-feet above the finished floor; or,*
 2. *When the connection is on a wall the pipe shall be painted red from floor to ceiling, or minimum 10-feet high, whichever is less; or,*
 3. *Where the fire code official determines that additional or substitute markings are necessary to clearly indicate standpipe hose valve connection locations, the fire code official may require additional signs and/or markings.*
- Exception:** *Standpipe hose valve connections in stairs and in interior corridors of commercial and residential occupancies, when approved...*
- C. **Roof Connections** shall have approved durable and conspicuous signs identifying the stair number serving each;
- D. **Manual Standpipes:** Calculations shall be based on typical pumper capacity of 150 PSI@1,250 GPM;
- E. **Hose Threads: 2½" NST connections shall be specified;**
- F. **Knox SecureCaps [www.knoxbox.com]:** Required in hotels and dormitories - Recommended in all occupancies;
- G. **Close-Out Documents** - PRIOR to requesting "final" inspection [email .PDFs to firepermits@cor.gov, with permit # in subject line]:
- 1) *Contractor's Material and Test Certification for Above Ground Piping [www.tdi.texas.gov/forms/form18sprinkler.html];*
 - 2) *As-built record drawings marked "AS-BUILTS" when changed from approved plans, or when otherwise requested.*
- H. **Inspections [see page 1, sec. 4]:**
- 1) **Complete and check all work [pre-test] before requesting inspections – all conditions must be met;**
 - 2) *Schedule visual inspections with the hydrostatic tests, when applicable, prior to installation of ceilings or other obstructions.*
12. **HOOD SUPPRESSION SYSTEMS** [NFPA 96, 2014 edition]:
- A. *Submit valid documentation from the system manufacturer indicating that the individual(s) designing and installing the system is "authorized" to perform such work [e.g.: Valid Certificate, OR letter from manufacturer dated within the prior 12-months.];*
- B. **Monitoring** . *Where a building fire alarm, or a "sprinkler waterflow and supervisory system", is installed, automatic fire-extinguishing systems shall be monitored by the building fire alarm system, or "sprinkler waterflow and supervisory system";*
- C. *See "Example Hood Suppression System Submittal" at www.cor.net/fire/permits, for a sample of approved format and required information to be contained in a submittal:*
- 1) *Show hood and duct dimensions and shapes;*
 - 2) *Show appliance descriptions and Hazard dimensions [descriptions must match the system installation manual];*
 - 3) *Show all piping, valves, detectors, nozzles, manual-pull, class-K extinguisher, placard, and tank location(s):*
 - a) *Indicate nozzle height, position, and aiming for each nozzle.*
 - b) *Include manufacturer's nozzle installation instructions [NOT a "Nozzle Summary Sheet"], and tank specification sheet, with each specified nozzle/application, and tank, highlighted. Use the latest manuals and revisions, ONLY.*

- 4) Submit a floor plan of the clearly showing ALL of the following – unrelated fixtures should NOT be shown:
 - a) Hood system(s) location;
 - b) Exits;
 - c) Class-K extinguisher and placard adjacent to the manual pull station;
 - 10'-20' from hood – INDICATE ACTUAL TRAVEL DISTANCE from each hood to its manual pull station/extinguisher;
 - Along the path of exiting.
 - 5) *An approved method* [a PHYSICAL positioning system] *shall be provided that will ensure that the appliance is returned to an approved design location* [NFPA 96 12.1.2.3.1]:
 - a) **Include both floor- and table-mounted appliance positioning – specify if no table-mounted appliances will be present;**
 - b) Show details and submit data sheet(s);
 - c) Paints, markers, tapes, restraint cables, etc., are NOT approved for this purpose.
 - D. Multiple systems: Approved signs must clearly identify each hood and pull station – SHOW DETAILS & LOCATIONS of signs;
 - E. Make-up air, and fuel sources under the hood, must shut-off upon activation – exhaust fan(s) remain on;
 - F. **Close-Out Documents** - PRIOR to requesting “final” inspection [email .PDFs to firepermits@cor.gov, with permit # in subject line]:
 - 1) *Fire Extinguisher System Installation Certification* [SF205] [www.tdi.texas.gov/forms/form18Extinguisher.html];
 - 2) As-built record drawings marked “AS-BUILTS” when changed from approved plans, or when otherwise requested.
 - G. **Inspections** [see page 1, sec. 4]:
 - 1) **Complete and check all work [pre-test] before requesting inspections – ALL conditions must be met;**
 - 2) Provide the applicable manufacturer’s [or compatible] nozzle aiming tool at time of acceptance test;
 - 3) Fire alarm licensee must be present during acceptance test to confirm supervision, when applicable.
13. **OTHER SYSTEMS:**
- A. Show how the system complies with, or is exempt from applicable sections of codes, standards, and regulations;
 - B. Where applicable, submit valid documentation from system manufacturer indicating the individual(s) designing and installing the system is “authorized” to perform such work [e.g.: Valid Certificate, OR letter from manufacturer dated within prior 12-months].