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Fire Protection System Permits Policy

[Revised 09/02/2015]

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.

This list does not include all requirements. If you have questions, please contact the Fire Marshal's Office at (972) 744-5750.

Plans are reviewed in the order submitted. Our goal is to provide a complete and accurate review of new applications within ten (10) business days, and of resubmittals, fire service mains, and finish-out applications, within five (5) 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 2012 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 required 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 each system type [e.g. Fire Sprinkler, Fire Alarm];
   D. Permits shall be kept on the job site at all times and shall be readily available for inspection by the fire code official;
   E. Permits and Applications not retrieved within 30-days of notification will be discarded and resubmittal will be required.
2. **EXEMPTIONS:** System repairs [e.g. - Replacement with same model equipment or as specifically approved], or as follows:
   Fire Alarm and Detection ..... Fewer than 5 devices [initiation/notification] .. No permit, submittals, or acceptance test required
   Fire Sprinkler [incl. "turn-downs"]..... Fewer than 10 heads affected ..... No permit, submittals, or acceptance test required
   10 to 20 heads affected ..... Permit & inspection / No hydrostatic 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;
   B. **Complete and check all work [pre-test] before requesting inspections – all conditions must be met;**
   C. Permit holder shall request inspections by emailing firepermits@cor.gov, or 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;
   D. 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. **PAPER**: 1 SET, UNSTAPLED, UNBOUND [clips only], and LOOSELY ROLLED plans with a paper *Application*; OR,
   ELECTRONIC: USB drive or CD/DVD, with **unprotected .PDF files, ONLY,** with a **PAPER** *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 *2012 International Fire Code, §105.4 Construction Documents*;
   D. Const. documents shall be prepared, stamped, signed [digitally OK], & dated [after revision], by a licensed design professional;
   E. Plan Review Notes, and approved or marked-up plans, will be returned electronically, as a .PDF, via email, when possible.
6. **PLANS:**
   A. A 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) and Occupancy 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) "2012 International Fire Code, as adopted and amended by the City of Richardson";
      2) "2011 ed. NFPA 70" if applicable;
      3) Latest published editions of applicable NFPA Standard(s) – e.g. "2013 ed. NFPA 72", "2014 ed. 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;
   F. Plans shall be to drawn to scale – a graphic scale shall be indicated, e.g.:

   G. Unique room names and/or numbers, and room use shall be identified for every room;
   H. A legend identifying each symbol, component, make/model number, SIN [if applicable], & quantity shall be provided;
   I. Show ceiling height(s) & ALL walls, doors, partitions, furnishings, equipment and structural elements that affect the system design;
   J. DO NOT SHOW Systems and elements that do not affect the system design.
7. **PERFORMANCE-BASED DESIGNS AND VARIANCES:**
   Permit applications for designs that do not prescriptively comply with adopted codes and standards shall be submitted with sufficient documentation to support that the design meets the intent of the codes and standards, and provides a level of safety equal to or greater than that prescribed. Certification by a registered Fire Protection Engineer, or other design professional, may be required.

SPECIFIC SUBMITTALS:

8. **FIRE ALARM AND EMERGENCY COMMUNICATION SYSTEMS** [NFPA 72, 2013 edition]:
   A. **Audible Notification:**
      1) Identify the average ambient sound level(s) used as basis for design for the various coverage areas [NFPA 72 18.4.1.4.5];
      2) Identify rooms and spaces that will have audible notification [*occupiable* spaces] and those that will not [NFPA 72 14.4.1.4.1];
      3) Fire alarm signal shall be 3-pulse temporal pattern [including existing systems] unless otherwise approved in advance;
      4) Audible appliances provided for sleeping areas to awaken occupants shall comply with NFPA 72 18.4.5.3.
   B. **Visible Notification:**
      1) Visible notification shall protect storage, server, and similar spaces larger than 75 sq. ft., accessible from common areas;
      2) Indicate where "corridor-spacing" is applied [NFPA 72 §18.5.5.5 Spacing in Corridors] or "Room-spacing" will be presumed.
   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. 4007]**:**
      1) FACP shall be located at the fire sprinkler riser – a remote annunciator may be required to facilitate Fire Department response;
      2) Manual fire alarm box shall be provided at the main exit. Additional boxes may be required in approved locations;
      3) Exterior weatherproof horn/strobe, min. 75cd, shall identify the primary emergency access to the fire sprinkler riser room;
      4) Waterflow A/V shall activate only upon "water-flow", 45-60 seconds of constant waterflow through smallest sprinkler orifice;
      5) ***Dedicated Function Fire Alarm Control Unit*** NFPA 72 *23.8.5.5.1 Where required… 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) Systems shall not partially protect any building unless clearly stated in submittals, and specifically approved to do so;
      2) DACT systems shall use one telephone line and one of the following [NFPA 72 26.6.3.2.1.4 Transmission Channels]:
         a) One-way private radio alarm system;
         b) Two-way RF multiplex system;
         c) Transmission means complying with 26.6.3.1 [A single transmission path (26.6.3.1.5) is prohibited.]
      3) Submit riser diagram for every affected circuit [show each device in each circuit];
      4) Submit battery calculations for each affected power supply, and battery calculation worksheets for each affected circuit;
      5) Submit data-sheets for each affected device & significant components [e.g. – FACP, PS, Detector, A/V, Communicator, etc…];
      6) Highlight each SPECIFIC current draw used in calculations [EVERY value used in calcs. & ONLY those values used in calcs.]:
         a) The designer confirms that the correct values are input;
         b) If multiple models or settings are available, correct values are identified so reviewer need not make assumptions;
         c) Expedites review, as the reviewer need not search for the correct values.
      7) Show point-to-point wiring and end-of-line [EOL] resistors.
   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]**;**
      2) Test audibility levels using ANSI S1.4a compliant sound level meter – with all walls, ceilings, flooring, doors, etc… installed;
      3) Waterflow A/V shall activate only on "water-flow", within 45-60 seconds of constant flow through smallest sprinkler orifice;
      4) *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 System circuit disconnecting means shall be permanently identified as to its purpose in accordance with 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, a listed 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.
         10.6.10.1.2 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.
   G. **Close-Out Documents** - Submit within 10-days after completion [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 [required for all permitted work].

9. **FIRE SERVICE MAINS/FIRE HYDRANTS/FIRE DEPARTMENT CONNECTIONS** [NFPA 24, 2013 edition]:
   A. **Comply with *Fire Service Mains, Fire Hydrants, and Fire Department Connections***, at www.cor.net/fire/permits;
   B. **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 – conduit may be "center-loaded", with correct embedment material.
   C. **Close-Out Documents** - Submit within 10-days after completion [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 [required for all permitted work].

10. **FIRE SPRINKLER SYSTEMS** [NFPA 13 2013 edition, 13R 2013 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* [ord. 4007];
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 §*8.17.4.6.2*].

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 72 §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. **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.

F. **Close-Out Documents** - Submit within 10-days after completion [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 [required for all permitted work].

11. **STANDPIPE SYSTEMS – CLASS I** [NFPA 14, 2013 edition] – In addition to the applicable requirements in SPRINKLER SYSTEMS, on page 3:
    A. **Comply with *Ordinance 4007* [Fire Code Amendments] Section 905**, available at www.cor.net/fire/permits;
    B. **Manual Standpipes:** Calculations shall be based on typical pumper capacity of 150 PSI@1,250 GPM;
    C. **Hose Threads:** 2½" NST connections shall be specified;
    D. **Hose Connections in Stairs:** Locate FHVs on the highest intermediate landing between floors except basement/roof [ord. 4007];
    E. **Knox *SecureCaps*** [www.knoxbox.com]: Required in hotels and dormitories - Recommended in all occupancies;
    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.
    G. **Close-Out Documents** - Submit within 10-days after completion [email .PDFs to firepermits@cor.gov, with permit # in subject line]**:**
        1) *Contractor's Material and Test Certification for Aboveground Piping,* www.tdi.texas.gov/forms/form18sprinkler.html;
        2) As-built record drawings.
12. **HOOD SUPPRESSION SYSTEMS** [NFPA 96, 2014 edition]:
    A. 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.
        4) Submit a floor plan of the area clearly showing:
            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) Show DETAILS of method used to ensure that ALL appliances are returned to approved design location [NFPA 96 §12.1.2.3.1]:
            a) Include both floor- and table-mounted appliances;
            b) Also submit manufacturer's data sheet [do NOT submit MSDS], e.g. – Positioning system; Epoxy paint; Industrial tape; etc... 96 2011 ed. sec. 12.1.2.3.1];
            c) Restraint cables are NOT approved for this purpose.
    B. When multiple systems are present, approved signs shall clearly identify which system each manual-pull activates – SHOW DETAILS and LOCATIONS of signs;
    C. Make-up air, and fuel sources under the hood, must shut-off upon activation – exhaust fan(s) remain on;
    D. **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.
    E. **Close-Out Documents** - Submit within 10-days after completion [.PDFs ONLY 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.
13. **OTHER SYSTEMS**:
    Show how the system complies with, or is exempt from applicable sections of codes, standards, and regulations.