



FIELD INSPECTION / ACCEPTANCE TESTING OF FIRE SPRINKLER SYSTEMS

A Program of the Canadian Automatic Sprinkler Association

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WHEN & WHERE FIRE SPRINKLER SYSTEMS ARE REQUIRED?

- British Columbia Building Code dictates when a fire sprinkler system / standpipe system / fire pump, etc must be installed in a building.
 - Automatic Sprinkler System 3.2.5.12
 - Fire Department Connections 3.2.5.15
 - Standpipe System 3.2.5.9
 - Fire Pump 3.2.5.18
- British Columbia Building Code references the appropriate NFPA standard for design and installation requirements.
 - NFPA 13, NFPA 13R, NFPA 13D, NFPA 14, NFPA 20

WHEN & WHERE FIRE SPRINKLER SYSTEMS ARE REQUIRED?

Provincially Adopted Referenced Standards as of April 2023								
Province / Territory	NFPA 13	NFPA 13R	NFPA 13D	NFPA 14	NFPA 20	NFPA 25	CSA B64	CSA B139
National Building Code	2019	2019	2016	2013	2016			2019
National Fire Code						2017		2019
National Plumbing Code							2011	
British Columbia	2013	2013	2013	2013	2013	2014	2011	2009
Alberta	2013	2013	2016	2013	2016	2017	2011	2015
Manitoba *2	2013	2010	2010	2010	2010	2008	2011	2009
Saskatchewan	2013	2013	2013	2013	2013	2011	2011	2009
Ontario	2013	2013	2016	2013	2016	2014	2011	2009
New Brunswick	2013	2013	2016	2013	2016	2008	2011	2009
Nova Scotia	2013	2013	2016	2013	2016	2017	2011	2009
Prince Edward Island	2013	2013	2016	2013	2016	2011	2011	2009
Newfoundland & Labrador *1	2022	2022	2022	2019	2022	2020	2021	2019

Footnotes:

- *1. NFLD has regulation that amends NBC to current editions of NFPA six months after publication.
- *2. Manitoba will adopt 2020 National Model Codes in 2023.
- 3. Most Provinces and Territories adopt the National Codes with some modifications and additions.

UNDERGROUNDS

Undergrounds – Piping and Fittings

- As permitted by NFPA 13 and 24
- Ductile Iron (C104)
- Plastic (C900)
- Additional piping per standard



UNDERGROUNDS

Undergrounds: Protection from Freezing

- Bury Depth
 - Not less than 12" below frost line
 - Top of pipe to final grade
 - If listing requires more, use that
 - Heat tracing is allowed



UNDERGROUNDS

Undergrounds: Protection from Mechanical Damage

- Bury Depth
 - Not less than 30" bury
 - Top of pipe to final grade
 - 36" under driveways or roads



UNDERGROUNDS

Undergrounds –Restraint

- Restraint
 - Thrust Blocks
 - Restrained Joint Systems
- Both are required for steep grades



UNDERGROUNDS

Undergrounds –Testing

- Hydrostatic Testing
 - 200 psi for 2 hours
 - +/- 5 psi allowed
- Flushing
 - Required before connection to downstream piping
 - Flush until flow is clear of debris
 - Flow rate per NFPA 24 or max flow rate available



UNDERGROUNDS

Undergrounds –Flushing

Table 6.10.2.1.3 Flow Required to Produce Velocity of 10 ft/sec (3.0 m/sec) in Pipes

Nominal Pipe Size		Flow Rate	
in.	mm	gpm	L/min
2	50	100	380
2 1/2	65	150	568
3	75	220	833
4	100	390	1,500
5	125	610	2,300
6	150	880	3,350
8	200	1,560	5,900
10	250	2,440	9,250
12	300	3,520	13,300

[24:Table 10.10.2.1.3]

REMOTE FIRE DEPARTMENT CONNECTIONS


Remote Fire Department Connections

- Located near FD access or approved location
- Drainage
 - Approved automatic drip in accessible location unless not subject to freezing
 - Approved automatic drip can be buried if discharges onto crushed stone or gravel
- When serving multiple buildings:
 - Sign provided indicating the buildings, structures or locations served



UNDERGROUND CERTIFICATE

- Required prior to the aboveground piping connection to the underground.
- Documents that a flush was completed.
- May not be necessary for a rough inspection (get it prior to final).



Contractor's Material and Test Certificate for Underground Piping

A. Procedure Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job. A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances. All "No" answers shall be explained in the Comments portion of this form.

Property Name: _____
 Property Address: _____
 Date: _____

B. Plans
 1. Accepted by approving authorities (names): _____

2. Address: _____
 3. Installation conforms to accepted plans Yes No
 4. Equipment used is approved Yes No

C. Instructions
 1. Has person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this new equipment? Yes No
 2. Have copies of appropriate instructions and care and maintenance charts been left on premises? Yes No

D. Location
 System supplies buildings: _____

E. Underground Pipes and Joints
 1. Pipe types and class: _____

2. Joint type(s): _____

3. Pipe conforms to _____ standard? Yes No

4. Fittings conform to _____ standard? Yes No
 5. Joints meeting storage clamp, stepped or blocked in accordance with _____ standard? Yes No

F. Test Description
Flushing: Flush the required rate until water is clear as indicated by no collection of foreign material in berlap bags at outlets such as hydrants and blow-offs. Flush at flows not less than 150 gpm for 4-inch pipe, 800 gpm for 6-inch pipe, 1500 gpm for 8-inch pipe, 2440 gpm for 10 inch pipe, and 3520 gpm for 12-inch pipe. When supply cannot produce stipulated flow rates, obtain maximum available.

Hydrostatic: Hydrostatic tests shall be made at not less than 200 psi for two hours or 50 psi above static pressure in excess of 150 psi for two hours.

Leakage: New pipe laid with rubber gasketed joints shall, if the workmanship is satisfactory, have little or no leakage at the joints. The amount of leakage at the joints shall not exceed 2 gals per hr per 600 joints irrespective of pipe diameter. The leakage shall be distributed over all joints. If such leakage occurs at a few joints the installation shall be considered unsatisfactory and necessary repairs made. The amount of allowable leakage specified above can be increased by 1 gal per inch valve diameter per hr for each metal seated valve isolating the test section. If dry barrel hydrants are tested with the main valve open, so the hydrants are under pressure, an additional 5 gal per minute leakage is permitted for each hydrant.

G. Flushing Tests
 1. New underground piping flushed according to _____ standard? Yes No
 a. Flushing conducted by (company): _____
 b. Flushing flow obtained from: Public water Tank or reservoir Fire pump
 c. Type of opening: Hydraulic ram Open pipe
 2. Lead-ins flushed according to _____ standard? Yes No
 a. Lead-ins flushed by (company): _____
 b. How flushing flow for lead-ins was obtained: Public water Tank or reservoir Fire pump
 c. Type of opening: Y connection to flange & spigot Open pipe

H. Hydrostatic Test
 1. All new underground piping hydrostatically tested at _____ psi for _____ hours
 2. All joints covered? Yes No

I. Leakage Test
 1. Total amount of leakage measured _____ gal _____ hours
 2. Allowable leakage _____ gal _____ hours

J. Hydrants
 1. Number installed _____, type and make _____
 2. All operate satisfactorily? Yes No

K. Control Valves
 1. Water control valves left wide open? Yes No
 2. Have threads of fire department connections and hydrants interchangeable with those of fire department answering alarm? Yes No

L. Comments (This section is for additional explanation and notes. All "No" answers must be explained here.)

Date left in service: _____
 Check here if comments continue on other side of this form

M. Signatures
 1. Name of Installing Contractor: _____
 2. Tests witnessed by
 Property Owner (signed): _____ Date: _____
 Title: _____
 Installing Contractor (signed): _____ Date: _____
 Title: _____

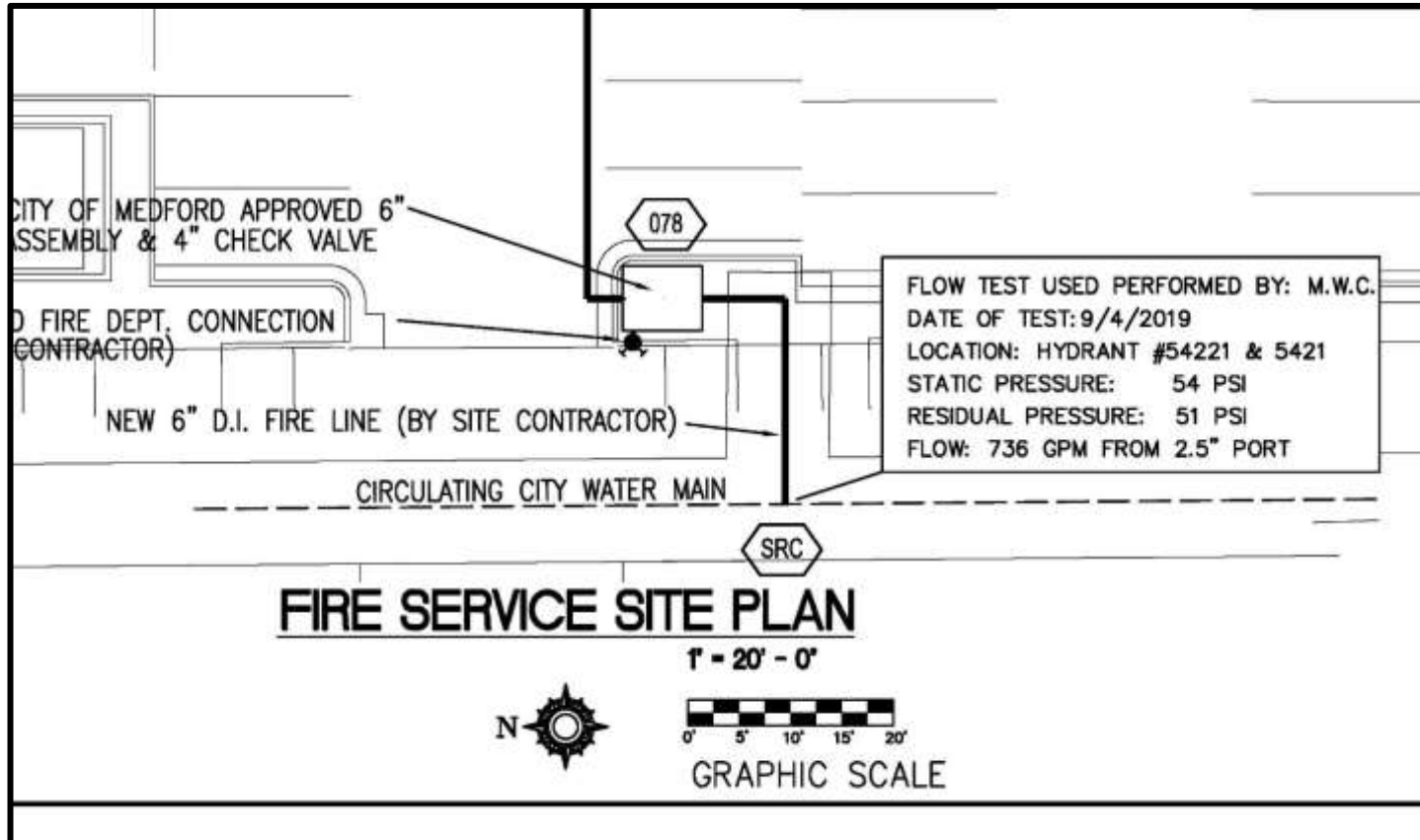
©2007 National Fire Sprinkler Association, 40 Jan. Harren Road Patterson, NY 12563 (845) 878-4200 Form 13-U Page 1 of 1

UNDERGROUND CERTIFICATE

Contractor's Material and Test Certificate for Underground Piping	
<p>PROCEDURE Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job. A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.</p> <p>Property name: _____ Date: _____</p> <p>Property address: _____</p>	
Plans	Accepted by approving authorities (names): _____
	Address: _____
	Installation conforms to accepted plans: <input type="checkbox"/> Yes <input type="checkbox"/> No Equipment used is approved: <input type="checkbox"/> Yes <input type="checkbox"/> No If no, state deviations: _____
Instructions	Has person in charge of the equipment been instructed as to location of control valves and care and maintenance of this new equipment? If no, explain: _____ <input type="checkbox"/> Yes <input type="checkbox"/> No
	Have copies of appropriate instructions and care and maintenance charts been provided to the owner or owner's representative? If no, explain: _____ <input type="checkbox"/> Yes <input type="checkbox"/> No
Location	Supply buildings: _____
Underground pipes and joints	Pipe type and class: _____ Type/joint: _____
	Pipe conforms to _____ standard: <input type="checkbox"/> Yes <input type="checkbox"/> No Fittings conform to _____ standard: <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: _____
	Joints needing anchorage stamped, strapped, or blocked in accordance with _____ standard: <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: _____
Test description	<p>Flushing: Flow the required rate until water is verified to be clear of debris at outlets such as hydrants and blow-offs. Flush at one of the flow rates as specified in 6.10.2.1.3.</p> <p>Hydrostatic: All piping and attached appurtenances subjected to system working pressure shall be hydrostatically tested at 200 psi (13.8 bar) or 50 psi (3.4 bar) in excess of the system working pressure, whichever is greater, and shall maintain that pressure ±5 psi (0.34 bar) for 2 hours.</p> <p>Hydrostatic Testing Allowance: Where additional water is added to the system to maintain the test pressures required by 6.10.2.2.1 the amount of water shall be measured and shall not exceed the limits of the following equation (for metric equation, see 6.10.2.2.6):</p> $L = \frac{2.31VP^2}{148,000}$ <p> L = testing allowance (makeup water), in gallons per hour (gpm) S = length of pipe tested, in feet (m) D = nominal diameter of the pipe, in inches (mm) P = average test pressure during the hydrostatic test, in pounds per square inch (gauge) (bar) </p>
Flushing tests	New underground piping flushed according to standard by (company): _____ <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: _____
	How flushing flow was obtained: <input type="checkbox"/> Public water <input type="checkbox"/> Tank or reservoir <input type="checkbox"/> Fire pump <input type="checkbox"/> Through what type opening: <input type="checkbox"/> Hydrant built <input type="checkbox"/> Open pipe
	Lead-ins flushed according to _____ standard by (company): _____ <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: _____
	How flushing flow was obtained: <input type="checkbox"/> Public water <input type="checkbox"/> Tank or reservoir <input type="checkbox"/> Fire pump <input type="checkbox"/> Through what type opening: <input type="checkbox"/> Y connection to flange and spigot <input type="checkbox"/> Open pipe



Check The Plans!



ROUGH INSPECTION

Rough Inspection – What Is It?

- Visual comparison of installation vs plans
- Typically required as a permit condition
 - Concealment of work
(Provincial Building Code)
- Types of Rough Inspections
 - Partial (hard lids, some rooms)
 - Full floors / systems



ROUGH INSPECTION

What To Look At – Piping / Fittings

- Steel Pipe
 - Required to be listed if it does not meet one of the standards
- Specially listed if it uses a different joining technique than in NFPA 13



ROUGH INSPECTION

Other Piping Materials



- CPVC – UL Listed
- Manufacturer Installation Instructions



- Copper – Type K, L, M
- Joint methods
- Hanger spacing



- Galvanized steel schedule 10 e.g.

ROUGH INSPECTION

CPVC

- Chemical Compatibility
- Follow manufacturer specifications
- Hybrid CPVC and Steel Systems



ROUGH INSPECTION

CPVC

- Solvent Cement
 - Sprinklers not installed until fitting is cemented into place
 - Cure time
 - Follow manufacturer



ROUGH INSPECTION

CPVC

- On-Site Storage
 - Needs UV protection
 - Follow manufacturer recommendations



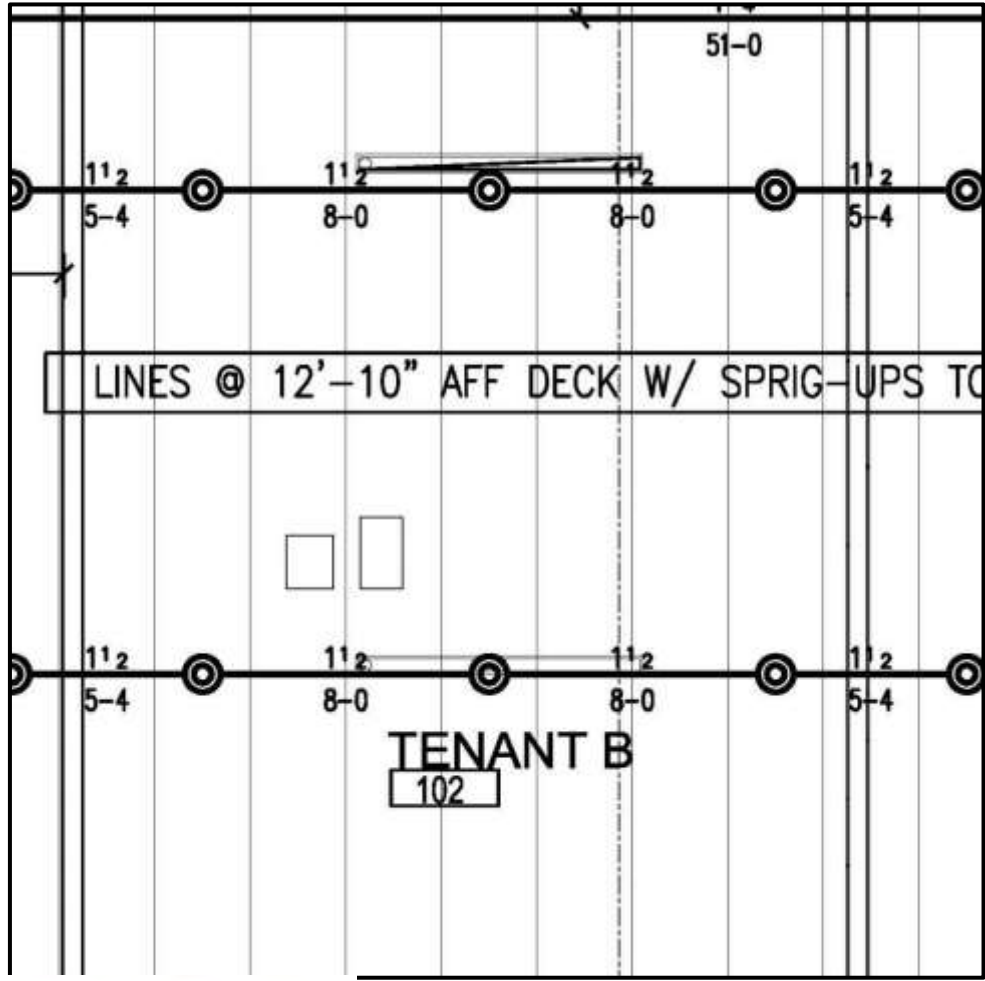
ROUGH INSPECTION

What To Look At – Routing of Piping

- Compare to drawings
 - Look for
 - Trapped sections
 - Pipe sizing
 - Minor modifications OK
- Use your judgement



Check The Plans!



ROUGH INSPECTION

What To Look At – Drainage for Wet Systems

- Auxiliary drains required
 - When pipe changes direction and will not drain through main drain
- Wet systems (above freezing)
 - 50+ gallons – 1" valve piped to accessible location
 - 5-50 gallons – min ¾" valve with cap or plug
 - Less than 5 gallons:
 - Min ½" cap or plug
 - Removal of pendent sprinkler
 - Flexible coupling or similar



ROUGH INSPECTION

What To Look At – Drainage for Dry Systems

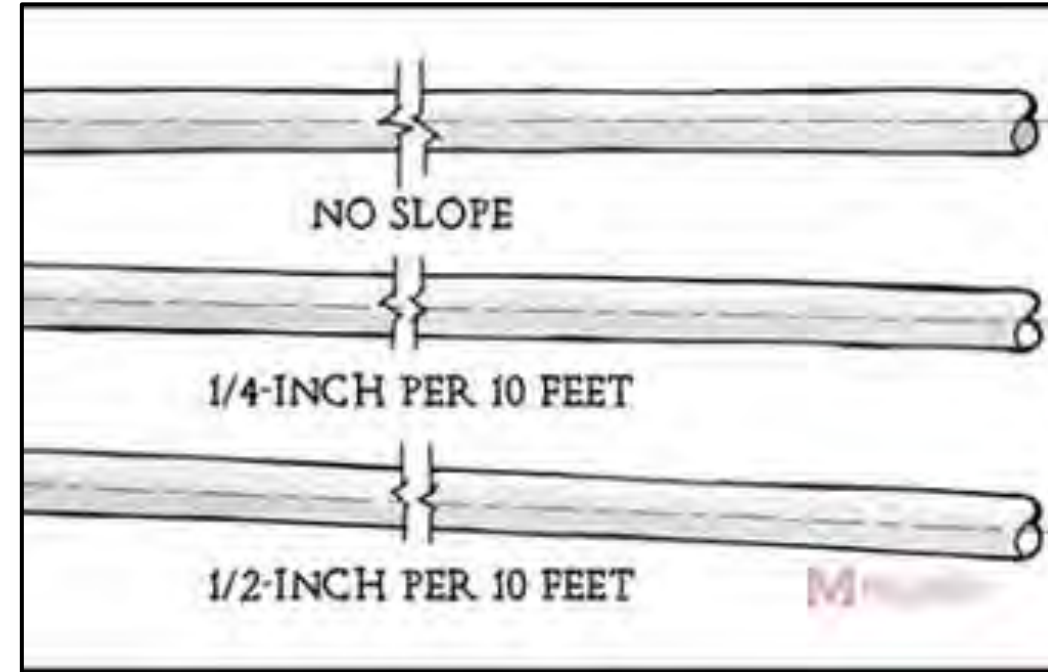
- Auxiliary drains required
 - When pipe changes direction and will not drain through main drain
- Dry systems (below freezing)
 - Must be accessible for service
 - Less than 5 gallons:
 - Min 1/2" valve with cap or plug
 - 5+ gallons:
 - 1 inch valves (2) and 12" piece of 2 inch pipe with cap or plug (drum drip)



ROUGH INSPECTION

What To Look At – Drainage for Dry Systems

- Pitching of pipe
 - Allows water to drain from dry systems
 - Pitched back toward the riser or valves
 - Branch lines: $\frac{1}{2}$ inch per 10 ft
 - System mains: $\frac{1}{4}$ inch per 10 ft
 - Refrigerated mains: $\frac{1}{2}$ inch per 10 ft
 - Affects distance of sprinklers from ceiling



ROUGH INSPECTION

What To Look At – Sprinkler Drops

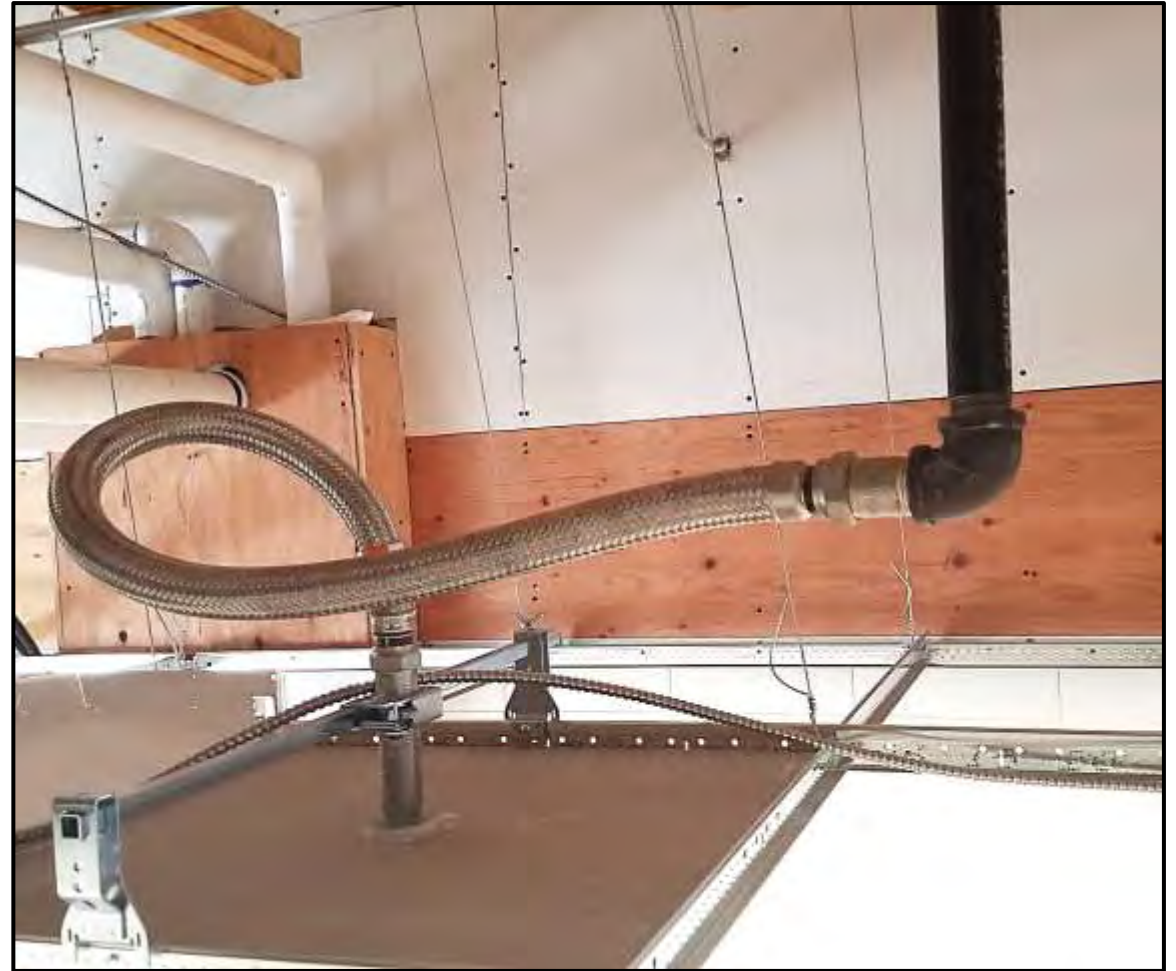
- Extends down to supply a sprinkler
- ‘Hard’ drops of steel, CPVC, etc
- Suspended ceilings may have special clearance rules in seismic zones



ROUGH INSPECTION

What To Look At – Sprinkler Drops

- Extends down to supply a sprinkler
- Flexible sprinkler hose fittings
 - Specific listing rules
 - Length
 - Maximum number of bends



ROUGH INSPECTION

What To Look At – Sprinkler Drops

- Flexible sprinkler hose fittings
‘zip tied’ to branch line piping
during rough-in prior to dropped
ceiling installation
- Notice protective ‘paint caps’
provided to protect sprinkler



It's OK!

- Deflector Distance?
 - Unobstructed Construction
 - 1-12"?

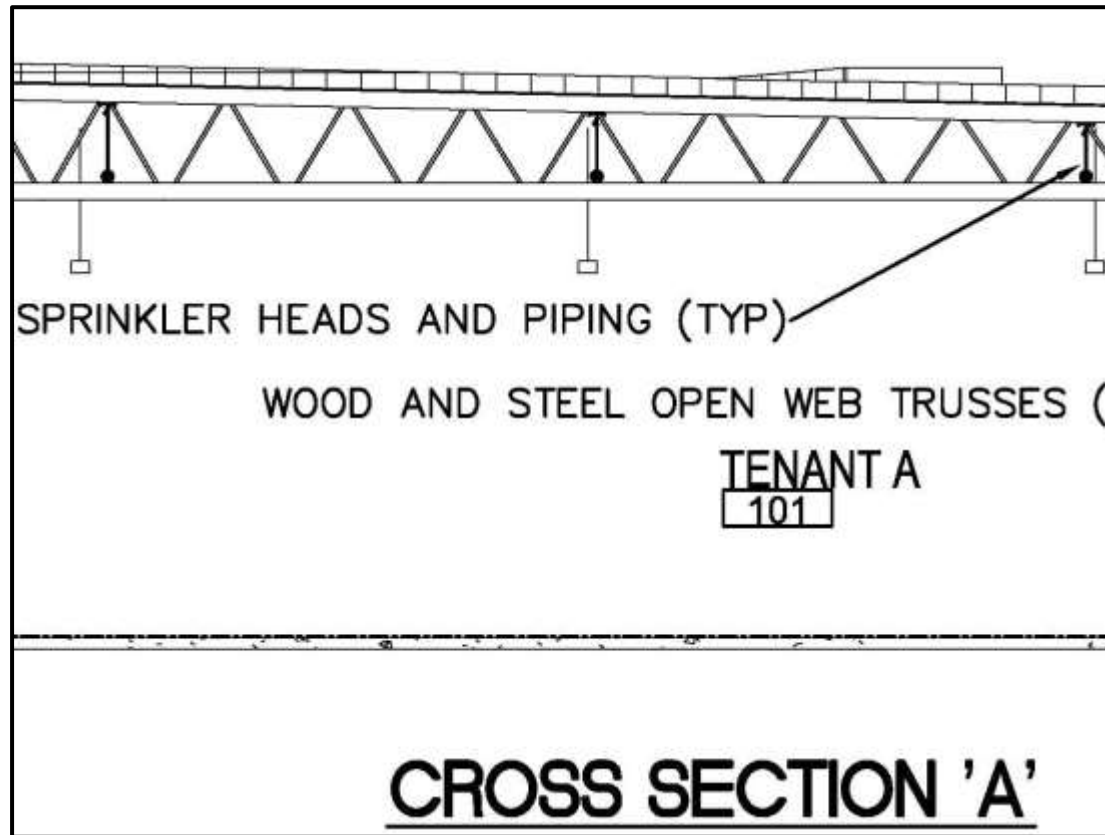


UH OH!

- Deflector Distance?
 - Unobstructed Construction
 - 1-12”?



Check The Plans...UH OH!



UH OH!

- Obstructed?
 - 3 x Rule?



ROUGH INSPECTION

Concealed After the Rough Inspection

- Dry Sprinklers
- Deflector distance
- Exposed barrel length?



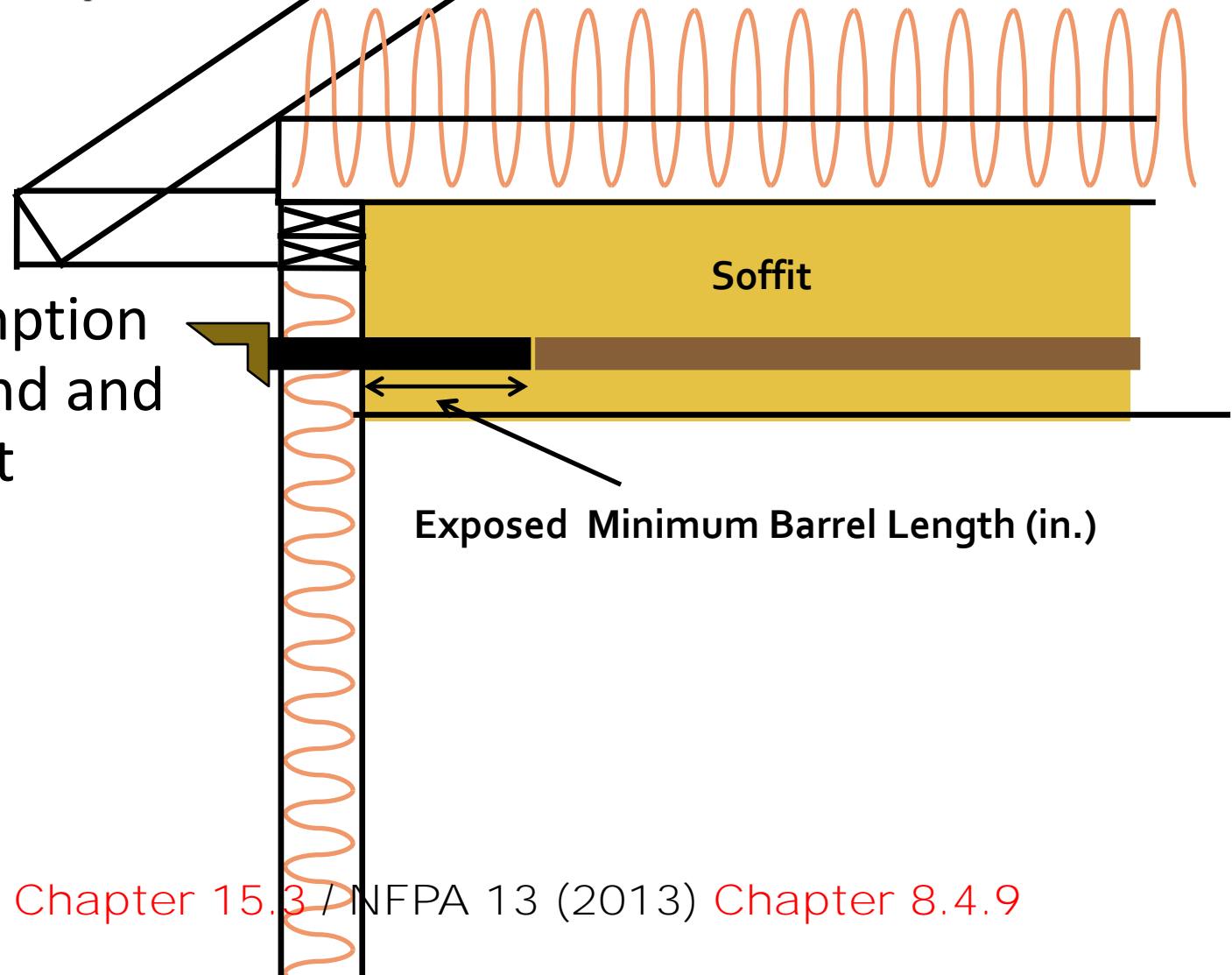
Ambient Temp. at Discharge End of Sprinkler (°F)	EXPOSED BARREL AMBIENT TEMP (°F)		
	40°F	50°F	60°F
	Exposed Minimum Barrel Length (in.)		
40	0	0	0
30	0	0	0
20	4	0	0
10	8	1	0
0	12	3	0
-10	14	4	1
-20	14	6	3
-30	16	8	4
-40	18	8	4
-50 +	20	10	6



APPLICATION OF DRY BARREL SPRINKLERS

Concealed After the Rough Inspection

- Dry Sprinklers
- Deflector distance
- Exposed barrel length?
- Criteria is based on assumption of tight seal at exposed end and realistic choice of ambient temperature

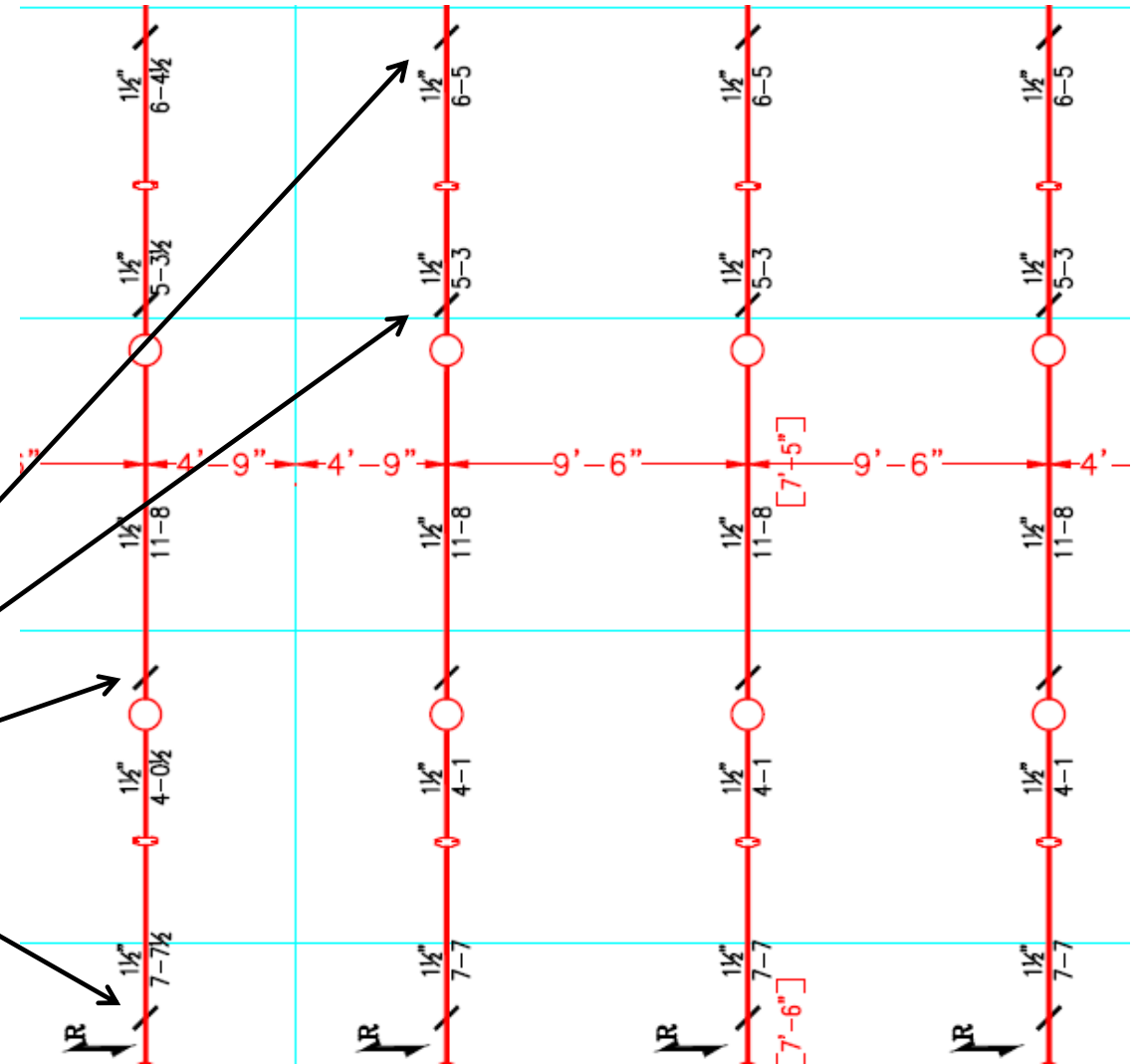


ROUGH INSPECTION

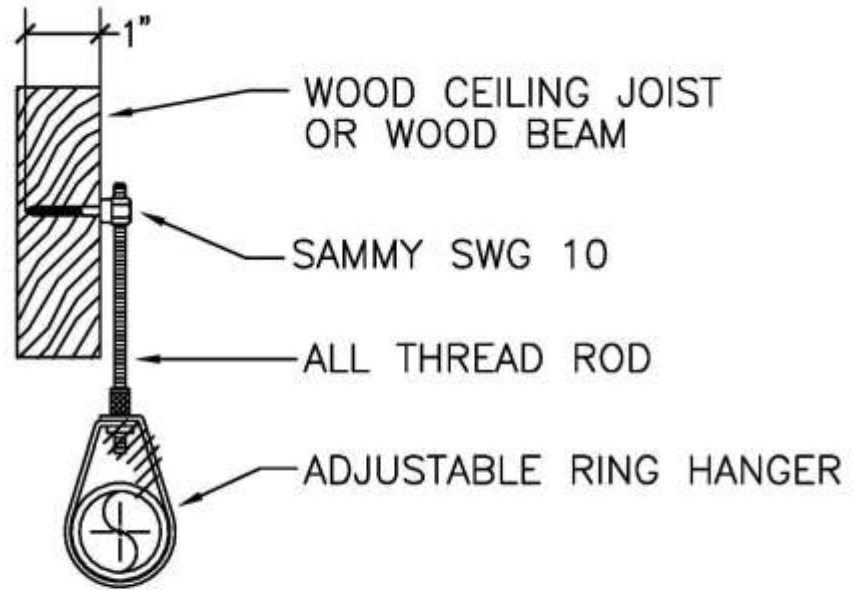
Concealed After the Rough Inspection

- Hangers
- Attachments
- Maximum distance between hangers
- Unsupported lengths
- Unsupported armovers

Hanger Symbols



Check The Plans!

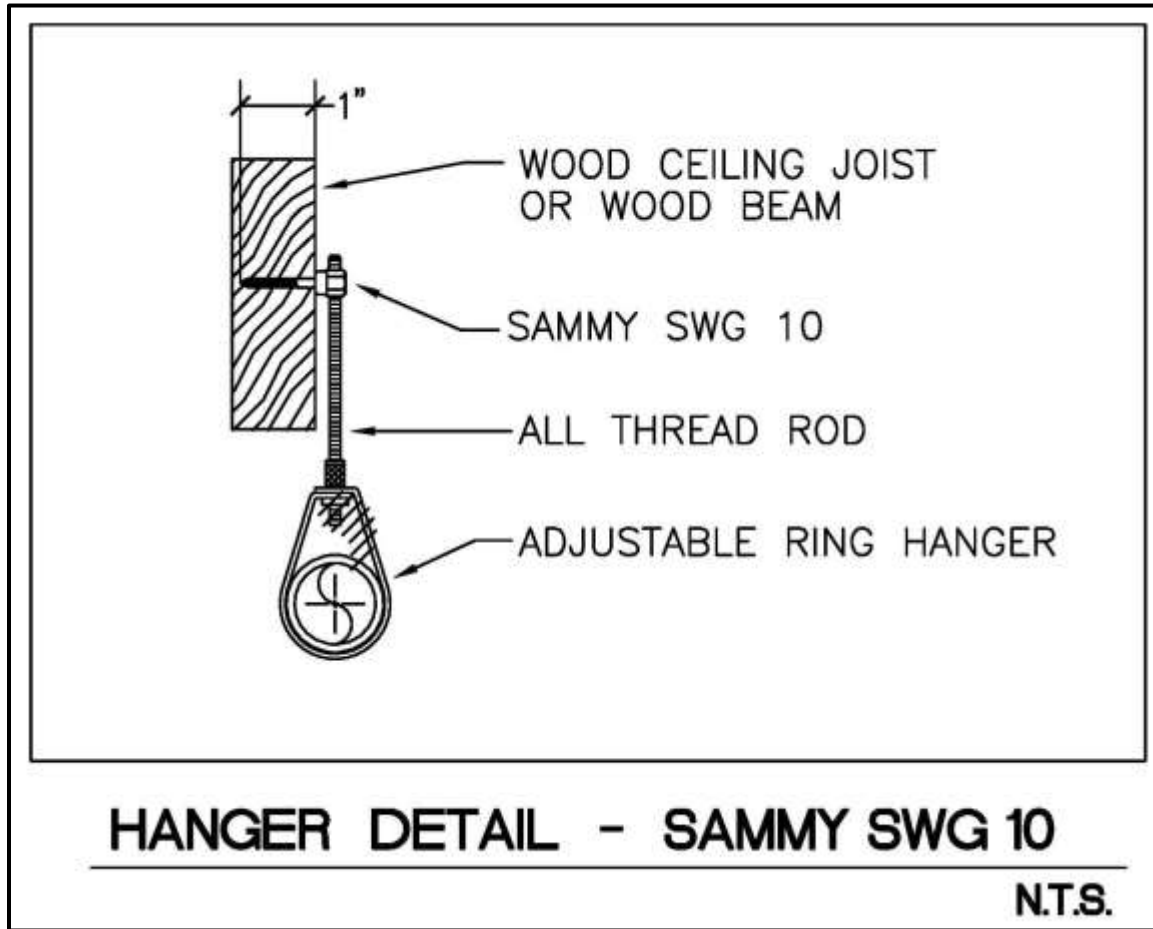


HANGER DETAIL - SAMMY SWG 10

N.T.S.



Check The Plans...UH OH!



UH OH!

- Allowed Hanger?



UH OH!

- Allowed Hanger?



ROUGH INSPECTION

Concealed After the Rough Inspection

- Hangers
- Max. distance between hangers
- Steel pipe:
 - 1 and 1 ¼ in.: 12 ft.
 - 1 ½ in. and above: 15 ft.



ROUGH INSPECTION

Concealed After the Rough Inspection

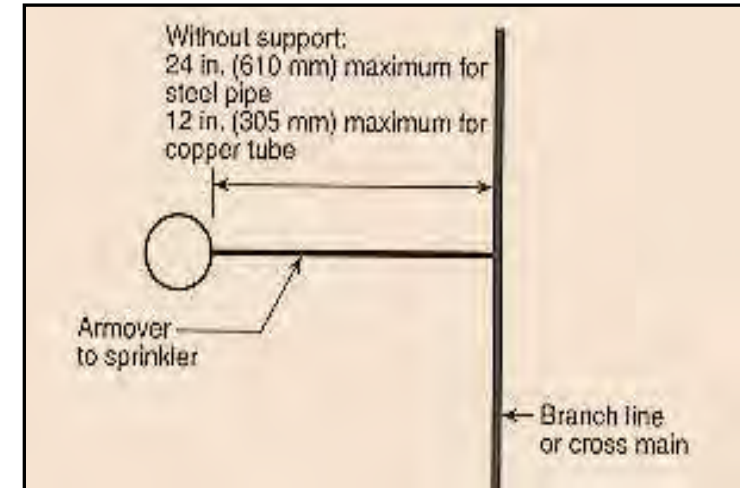
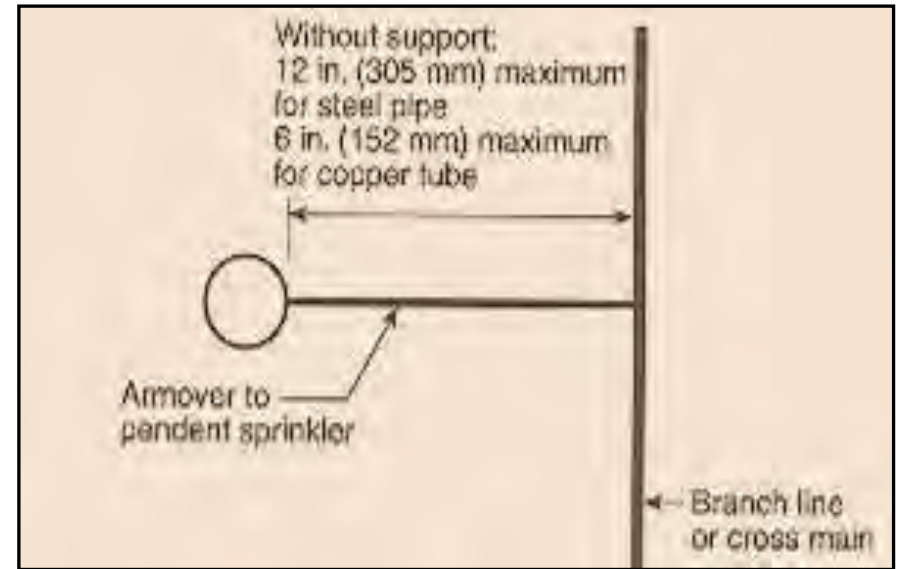
- Hangers
 - Unsupported lengths at end of branch line
 - 36 in. for 1-inch pipe
 - 48 in. for 1-1/4-inch pipe
 - 60 in. for 1-1/2-inch and larger pipe



ROUGH INSPECTION

Concealed After the Rough Inspection

- Hangers
- Unsupported armovers
 - Max cumulative 24" for steel, or
 - Max 12" for pendent in ceiling with 100 psi or higher, and;
 - Must prevent upward movement



ROUGH INSPECTION

Concealed After the Rough Inspection


- Hydrostatic Testing
 - Piping and fittings
 - 200 psi for 2 hours without loss
 - Loss determined by drop in gauge pressure or visual leakage
 - Leaks? Retest or correct as noted?
 - Use your judgement
- Phasing:
 - Sections of floors, etc, keep track



DOCUMENTATION

Documentation

- Keep track of ‘phased’ installations
- Hydrostatic test(s) on each floor?
- Specialty components installed?
 - Do an internet search for the cut sheet



Lafayette Fire Department

Sprinkler “Pre-Acceptance” Test Checklist

This **Sprinkler Pre-Acceptance Test Checklist** must be completed **prior to scheduling the field inspection** with the Lafayette Fire Department. Please send a copy of this completed form (with appropriate signatures) to LFD-FirePrevention@lafayette.in.gov

PROPERTY INFORMATION	
Building Name:	
Building Address:	
SYSTEM CONTRACTOR/INSTALLER	
Company Name:	
Company Address:	
Responsible Person (Contractor and/or Installer):	
Phone #:	Fax #:
Email:	
REQUIRED ACCEPTANCE TEST	
HYDROSTATIC TESTS	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1. All piping hydrostatically tested at not less than 200 psi for 2 hours, <u>or</u> 50 psi above static test in excess of 150 psi for 2 hours?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2. Piping shall be “air tested” @ 40 psi for 24 hours with a drop not to exceed 1.5 psi <i>(Cold Weather and/or Dry Systems)</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3. Piping between the exterior fire department connection and the check valve (backflow prevention device) shall be tested in the same manner as Item #1 or #2.
SYSTEM OPERATIONAL TESTS	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4. Waterflow Detecting Devices (and alarm circuits) flow tested through inspector’s test connection and shall result in audible alarm on the premises within 5 minutes after flow begins. <i>(Wet Systems)</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. Working test of the dry pipe valve & quick-opening device <i>(if applicable)</i> shall be made by opening inspector’s test connection and measure the time to trip the valve from the time the inspector’s test valve is completely opened. <i>(Dry Systems)</i> Maximum Volume is 750 gallons; unless a 60 second water delivery is achieved from time valve opened to water flow. <i>(NFPA 13-4-2.3, 1999 Edition)</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. Pre-Action Systems shall be tested in accordance with manufacturer’s instructions <i>(where applicable)</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No	7. Main Drain Valves shall be opened and remain opened under system pressure until the system pressure stabilizes, and static and residual pressures shall be recorded.
<input type="checkbox"/> Yes <input type="checkbox"/> No	8. Main Sprinkler Water Drain Discharge to the exterior of building or to a minimum 6 inch interior drain?
<input type="checkbox"/> Yes <input type="checkbox"/> No	9. Operating Test for Control Valves shall be fully closed and opened under system water pressure.

1 of 3
FP-2011-ICSP





MODULE 2

ACCEPTANCE TESTING OF SPRINKLER SYSTEMS

ACCEPTANCE TESTING

Overview

- Hydrostatic testing
- Pneumatic testing for dry / preaction
- System operational tests
- Instructions for the owner
- Contractor's material and test certificate



ACCEPTANCE TESTING

Hydrostatic Testing

- All Piping and fittings except drains
- 200 psi for 2 hours without loss
- Loss determined by drop in gauge pressure or visual leakage
- Leaks? Retest or correct as noted?
 - Use your judgement
- Phasing:
 - Sections of floors, etc, keep track



ACCEPTANCE TESTING

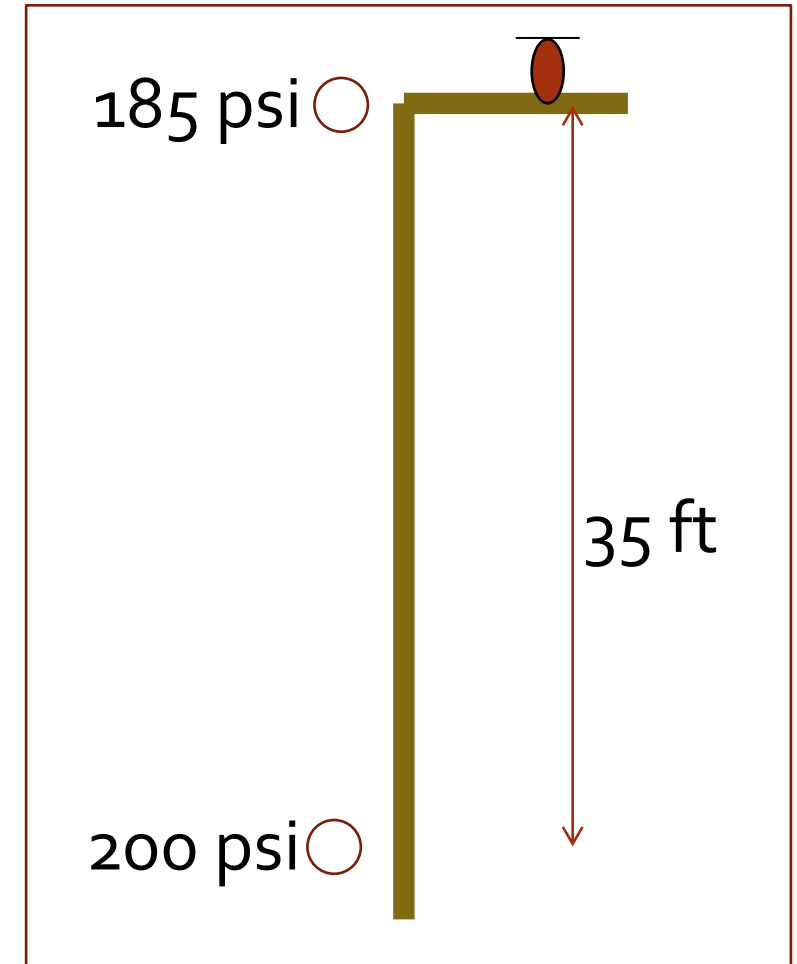
Hydrostatic Testing

- When systems are modified they are required to be tested for two hours
 - Modifications that affect more 20+ sprinklers that can be isolated must be hydrostatically tested to 200 psi or 50 psi over normal system pressure (whichever is greater)
 - Modifications to FDC tested at 150 psi
 - All other modifications must be hydrostatically tested to system pressure

ACCEPTANCE TESTING

Hydrostatic Testing

- Measuring point:
 - Pressure is measured at the lowest level
 - Pressure less than 200 psi is allowed higher in the system



ACCEPTANCE TESTING

Pneumatic Testing

- Dry Pipe and Double Interlock Preaction:
 - In addition to the two hour hydrostatic test
 - 40 PSI for 24 hrs +/- 1.5 psi
 - If piping is installed in operating areas under 32F the test needs to be conducted at lowest nominal temperature of the space
 - Piping listed for these types of applications can be tested per manufacturer (2019)



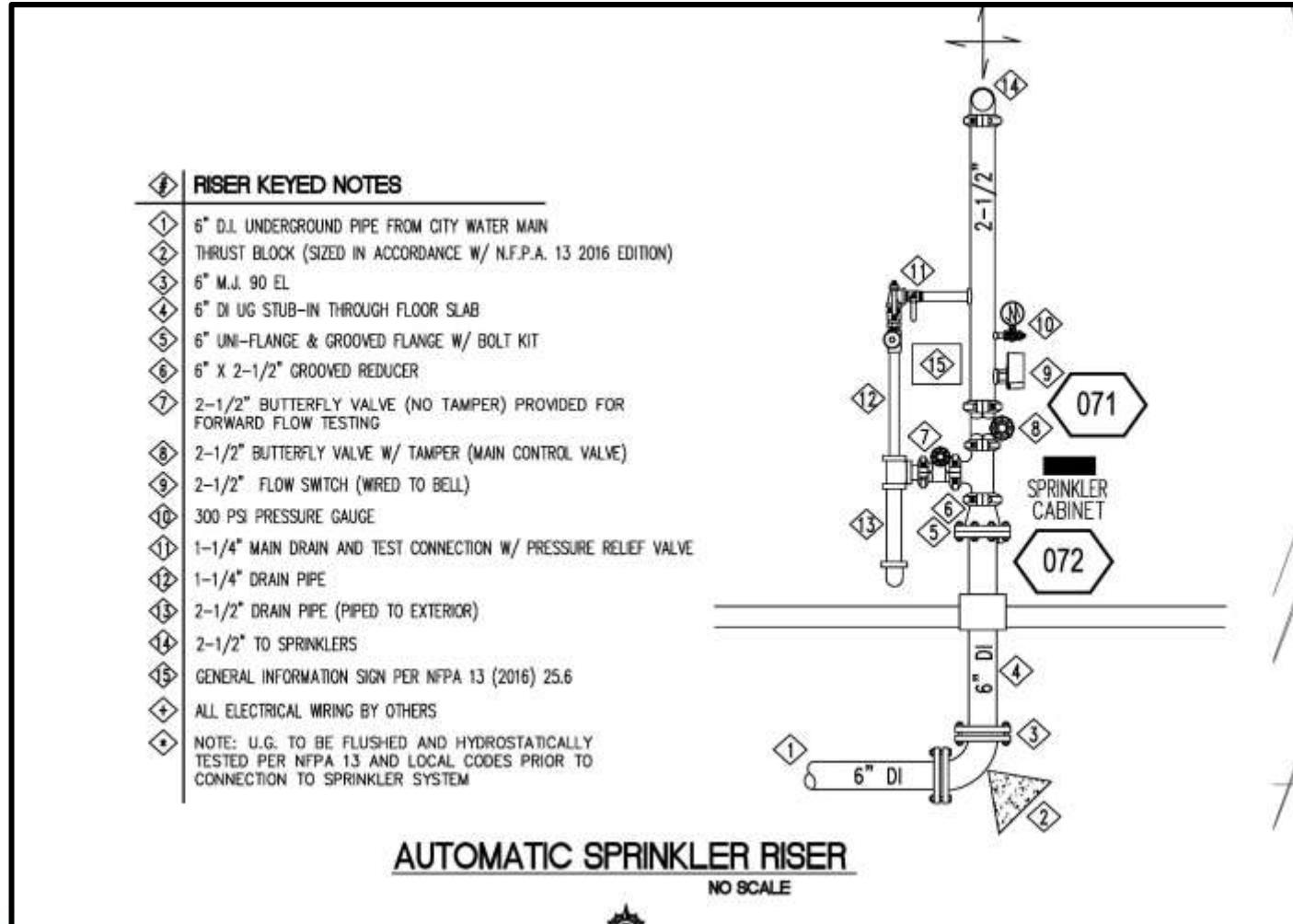
ACCEPTANCE TESTING

Operational Tests

- Water flow alarm
- Trip test
- Deluge and preaction Systems
- Main drain
- Pressure reducing valves
- Backflow preventers



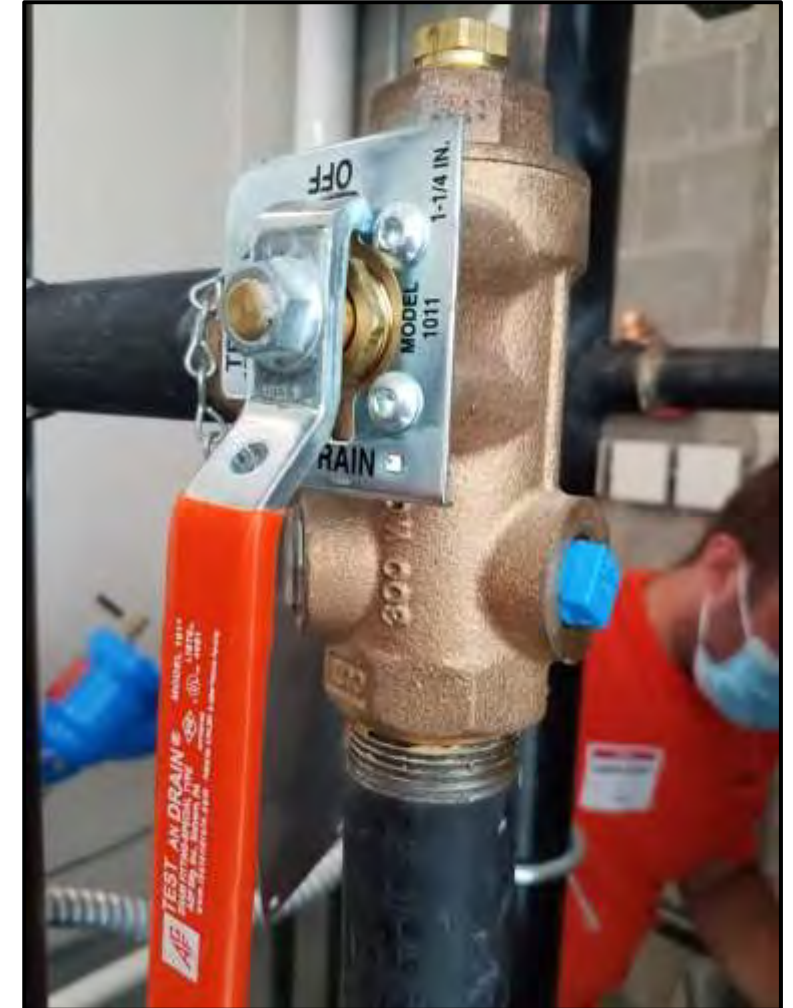
Check The Plans!



ACCEPTANCE TESTING

Inspector's Test Connection

- Wet system: after flow switch
- Dry system: most remote branch line



ACCEPTANCE TESTING

Waterflow Alarm

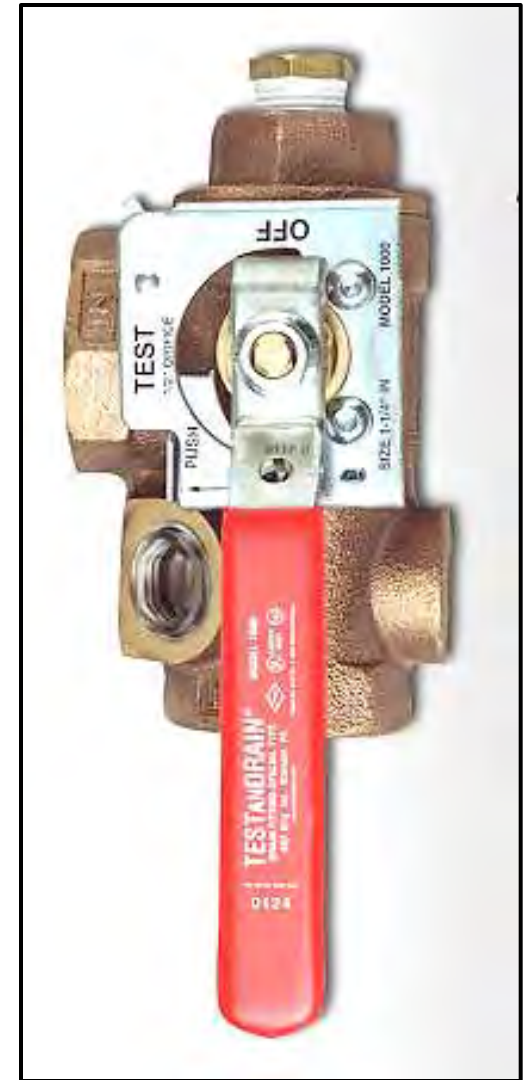
- Audible alarm must sound within 5 minutes of flow
- If the switch is also an initiating device for an alarm system, alarm must sound within 90 seconds of flow. (ULC)



Exterior Alarm Bell



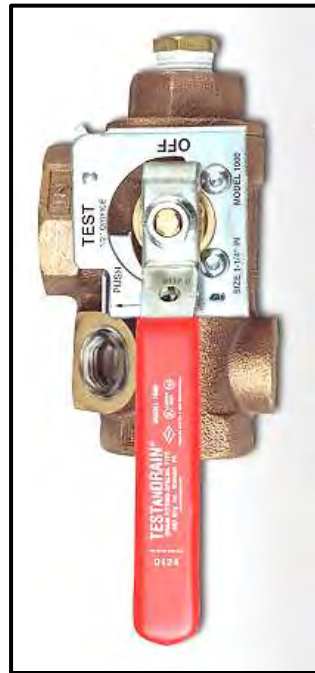
Fire Alarm System



ACCEPTANCE TESTING

Waterflow Alarm - Video

- In this test, a Test & Drain valve is used
Allowing the Main Drain Test as well



ACCEPTANCE TESTING

Trip Test

- Dry pipe systems only
- Water must reach the inspector's test connection within an acceptable amount of time
- Three recognized testing options:
 - Single inspector's test connection
 - Multiple inspector's test connections
 - Computer program



DRY PIPE SPRINKLER SYSTEM – ACTIVATION



ACCEPTANCE TESTING

Trip Test

- Water delivery time for single outlet ITC

Occupancy/QOD	System Volume	Water Delivery Time
Dwelling Unit	All	15 seconds
Not a dwelling unit	Under 500 gallons	No required delivery time
Not a dwelling unit with a QOD	Between 500 and 750 gallons	No required delivery time
Not a dwelling unit, no QOD	Between 500 and 750 gallons	60 seconds
Not a dwelling unit	Over 750 gallons	60 seconds (probably will need QOD to get it)

ACCEPTANCE TESTING

Multiple ITC Manifold or Computer Program

- Provide test connections as shown in the chart
- Water delivery time as shown in the chart
- When using the computer program a baseline trip test is still required

Hazard	Number of Most Remote Sprinklers Initially Open	Maximum Time of Water Delivery (seconds)
Light	1	60
Ordinary I	2	50
Ordinary II	2	50
Extra I	4	45
Extra II	4	45
High piled	4	40

ACCEPTANCE TESTING

Deluge and Preaction Systems

- Follow manufacturer's instructions
 - During full flow trip test of deluge systems, good idea to put gauge at most remote sprinkler
- Test manual release mechanism
- Test automatic release mechanism
- Test remote release mechanism if present
- Test certificate requires:
 - Detection media supervised
 - Valves function properly
 - Systems are capable of being tested



ACCEPTANCE TESTING

Main Drain Test

- Static pressure
- Residual pressure
- Baseline strength of the water supply
- Fire Pump? Conduct while fire pump is running



ACCEPTANCE TESTING

Backflow Preventers

- Forward flow tests
- Full system demand must be capable of going through the backflow preventer
- Required by both underground form and above ground form
- Only need to be done once, then annually in NFPA 25



ACCEPTANCE TESTING

Witnessing

V. Signatures

1. Name of sprinkler contractor: _____

2. Tests witnessed by: _____

For property owner (Signed): _____

Title: _____ Date: _____

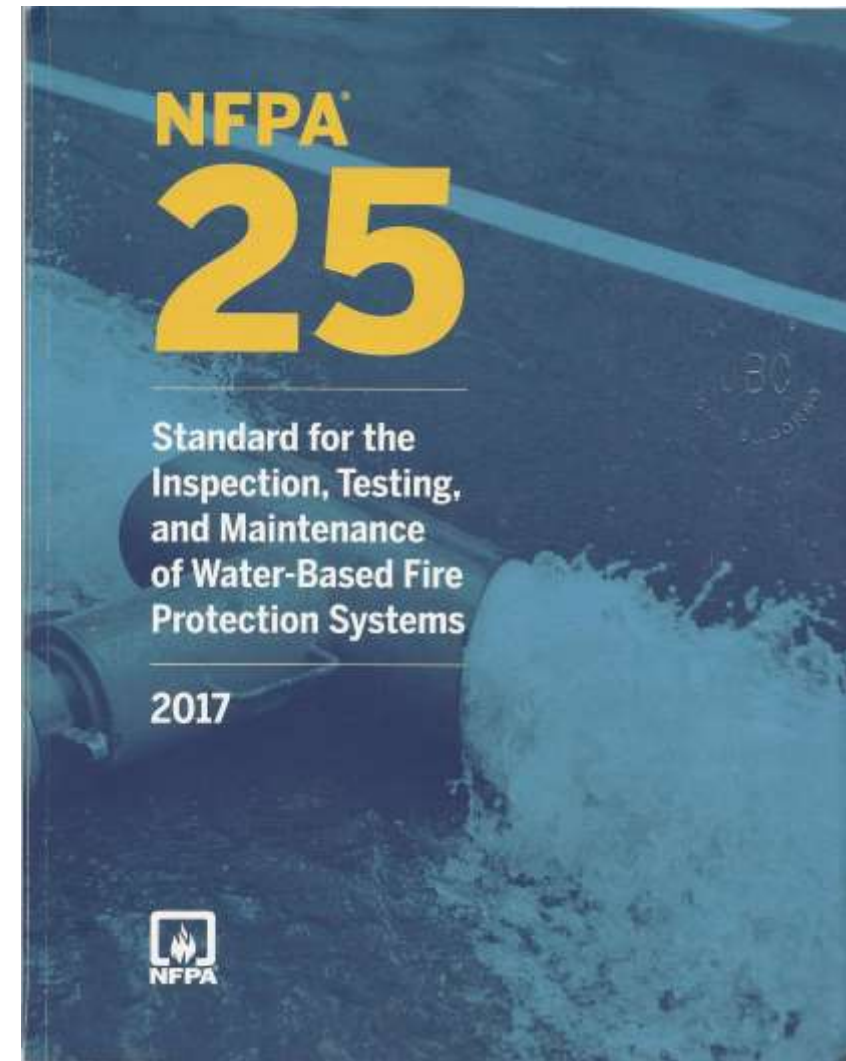
For sprinkler contractor (Signed): _____

Title: _____ Date: _____

ACCEPTANCE TESTING

Instructions for the Owner

- The owner must be instructed as to how to maintain the system
- The owner must be given a copy of NFPA 25
- The owner must be given a copy of any instructions from the manufacturers of products installed in the system





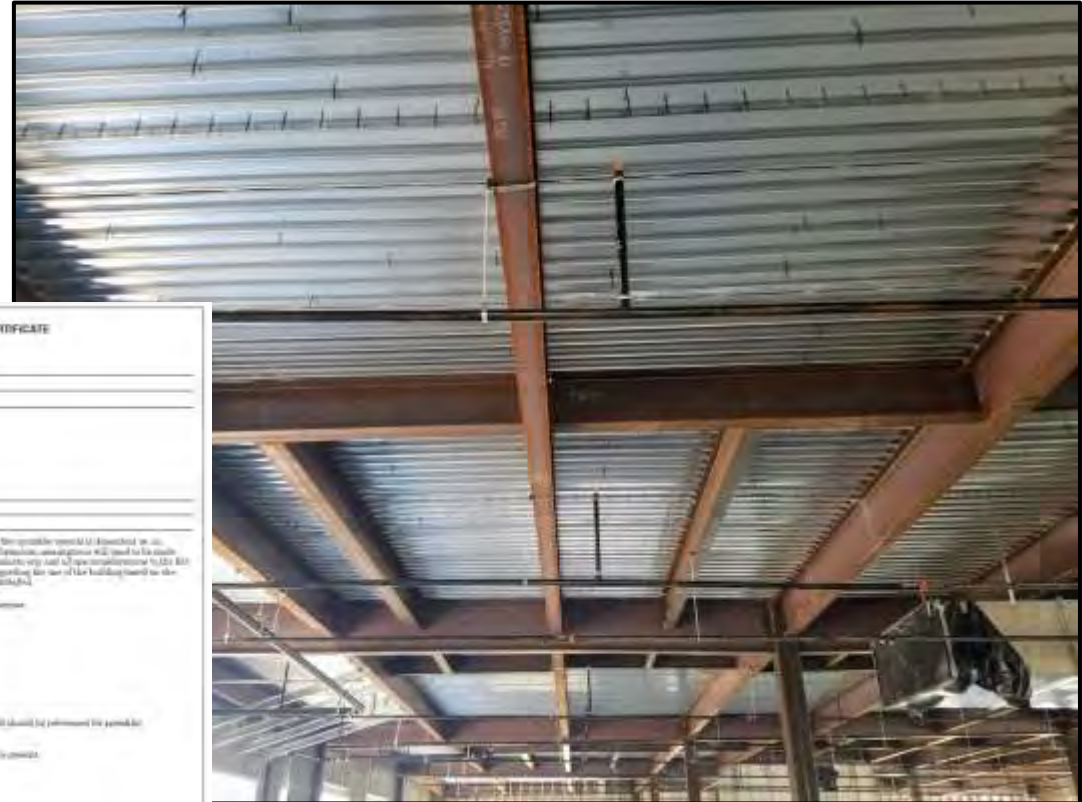
MODULE 3

FINAL INSPECTION OF SPRINKLER SYSTEMS

FINAL WALKTHROUGH

Occupancy Hazard / Commodities

- Does the installation correlate with the Owner's Certificate and stated use?
- 'Spec' or 'Shell' building?
 - Have some areas been fitted out / improved?
 - If so, additional permitting may be needed



OWNER'S INFORMATION CERTIFICATE

Essential lines of power to be provided with sprinkler protection:

Name of owner:

Building to be protected (description):

Is this structure occupiable?

Is this structure an existing structure with wet wall basins?

Is it a warehouse?

Describe the intended use of the building:

How regarding occupancy loadings? The design and construction of the structure specified is described in the attached description of the likely use of the building. The fire hazard, occupancy, and structure will need to be such that it will meet the current use of the building. Make sure that any construction, use and occupancy information is the fire protection contractor is this form said that you shall be responsible for the use of the building based on the information of the fire protection system that is currently designed and installed.

In the event installation is required, based on the following general information:

General building	2.0	2.0
Fire protection system	2.0	2.0
Fire alarm system	2.0	2.0
Water supply, test or repair	2.0	2.0
Alarm system	2.0	2.0
Fire alarm control panel	2.0	2.0
Fire alarm	2.0	2.0
Water supply system	2.0	2.0

Other items to be provided if the above is not the appropriate NFPA standard should be provided by the fire protection contractor.

Indicate if the building is to be used for the following general information:

Flammable or combustible liquids	2.0	2.0
Flammable gases	2.0	2.0
Flammable solids	2.0	2.0
Compressed or liquefied gas cylinders	2.0	2.0
Liquid or solid oxidizers	2.0	2.0
Highly combustible materials	2.0	2.0
Other	2.0	2.0

If the owner is not the owner of the building, describe type, location, arrangement, and intended occupancy classification.

Approved by owner:

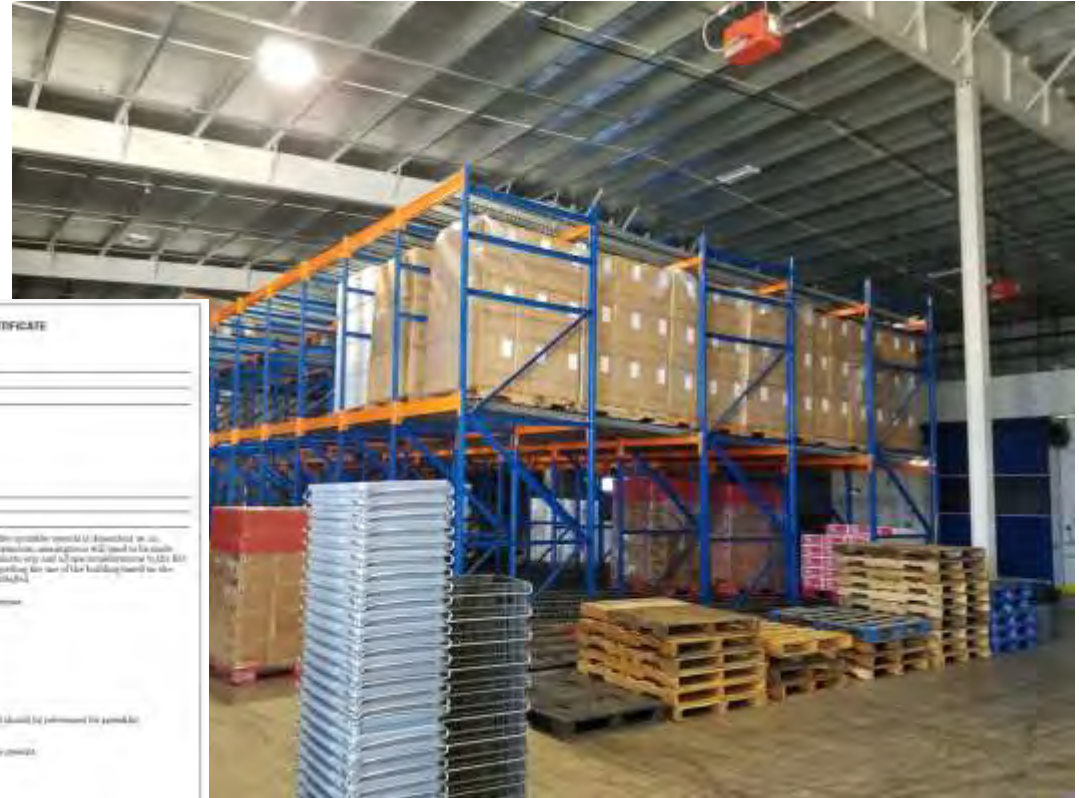
DATE: 11/11/11

FIGURE A-27 (b) Owner's Information Certificate

FINAL WALKTHROUGH

Occupancy Hazard / Commodities

- Does the installation correlate with the Owner's Certificate and stated use?
- Storage application?
 - Approved storage layout
 - Rack layout, top of storage, commodities, pallet types, etc



OWNER'S INFORMATION CERTIFICATE

Essential lines of power to be completed with sprinkler professional.

Name of owner: _____

Building or project description: _____
- If the response is "not applicable,"
- If there are no other comments with this question,
- If "None":

Describe the intended use of the building: _____

How regarding occupancy loading: The owner will not exceed the fire sprinkler system (as described in the certificate) investigation of the likely use of the building. The fire sprinkler system will be used to protect that use. In the event of a fire, the building will be used for the same purpose as the building described in the certificate. The fire sprinkler system will be used to protect that use of the building based on the information of the fire sprinkler system that is currently installed and listed.

In the event installation is required, based on the following general comments:

General storage	24 hrs	24 hrs
Flammable liquid storage	24 hrs	24 hrs
Flammable solid	24 hrs	24 hrs
Flammable gas, liquid or vapor	24 hrs	24 hrs
Flammable solid	24 hrs	24 hrs
Flammable liquid	24 hrs	24 hrs
Flammable gas	24 hrs	24 hrs
Flammable solid	24 hrs	24 hrs
Flammable liquid	24 hrs	24 hrs
Flammable gas	24 hrs	24 hrs

Other items to be listed if the above is "no," the appropriate NFPA hazard should be provided for each by the fire sprinkler professional.

In the event of a fire, the fire sprinkler system should be installed in the event:

Flammable or combustible solids	24 hrs	24 hrs
Flammable liquids	24 hrs	24 hrs
Flammable gas	24 hrs	24 hrs
Flammable solids	24 hrs	24 hrs
Compressed or liquefied gas cylinders	24 hrs	24 hrs
Liquid or solid oxidizers	24 hrs	24 hrs
Highly combustible materials	24 hrs	24 hrs
Flammable	24 hrs	24 hrs

If the owner is not of the above "no," describe type, location, arrangement, and intended maximum quantities.

FIGURE A-27 (10) - Owner's Information Certificate

FINAL WALKTHROUGH

Obstructions

- Not present during the rough inspection



Ducts and other building systems

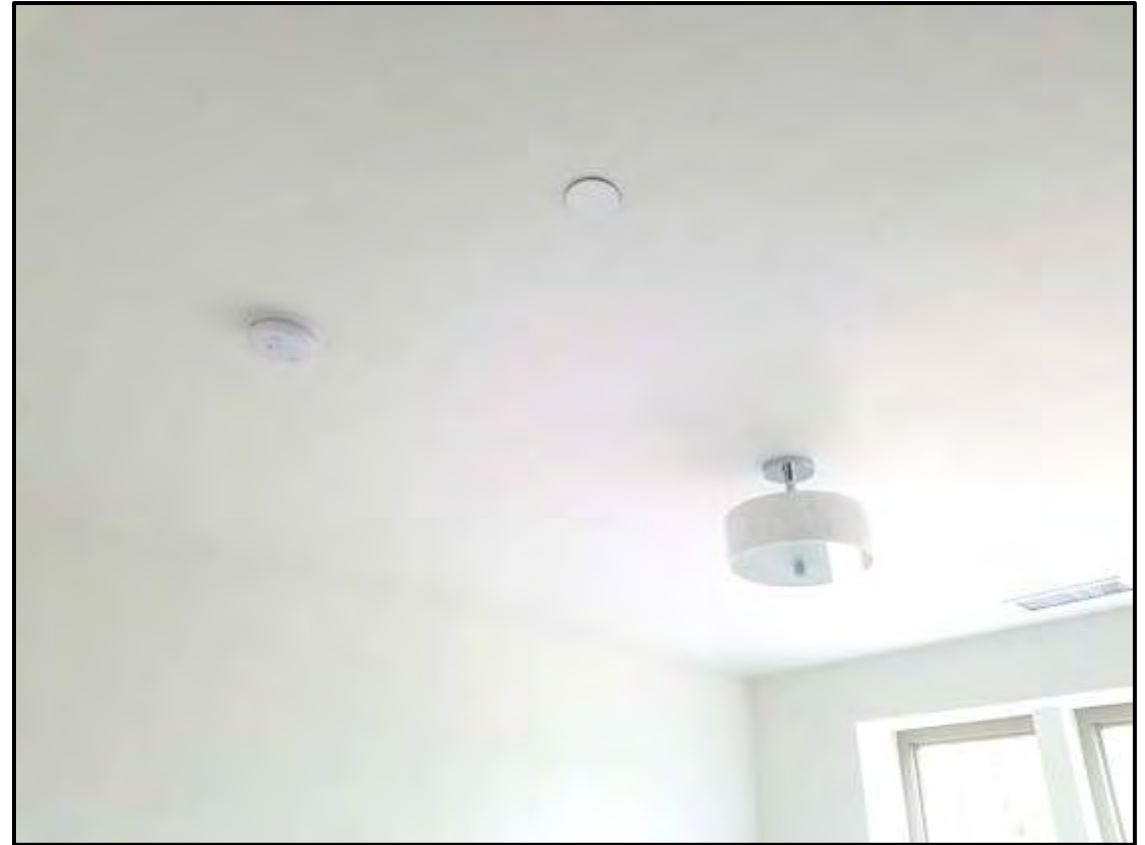


Building features that weren't built yet

FINAL WALKTHROUGH

Escutcheons / Trim

- Escutcheons on
- Caps/straps removed?
- Painted sprinklers?



UH OH!

- What Happened?
 - Write it down for correction



UH OH!

- What Happened?
 - Write it down for correction



UH OH!

- What Happened?
 - Write it down for correction



It's OK!

- Escutcheon in place



FINAL WALKTHROUGH

Heat Sources

- Radiant heaters
 - Located where indicated on plans?
- Fireplaces
- Diffusers

- Appropriate temperature rating for sprinklers?
- Intermediate temperature can be used throughout ordinary and light hazard



FINAL WALKTHROUGH

Heat Sources

- Radiant heaters
 - Located where indicated on plans?
- Fireplaces
- Diffusers

- Appropriate temperature rating for sprinklers?
- Intermediate temperature can be used throughout ordinary and light hazard



FINAL WALKTHROUGH

Signage

- Control valves
- Drain valves
- Venting and test connection valves
- Permanently marked metal or rigid plastic signs.
 - Secured with corrosion resistant means



FINAL WALKTHROUGH

Signage

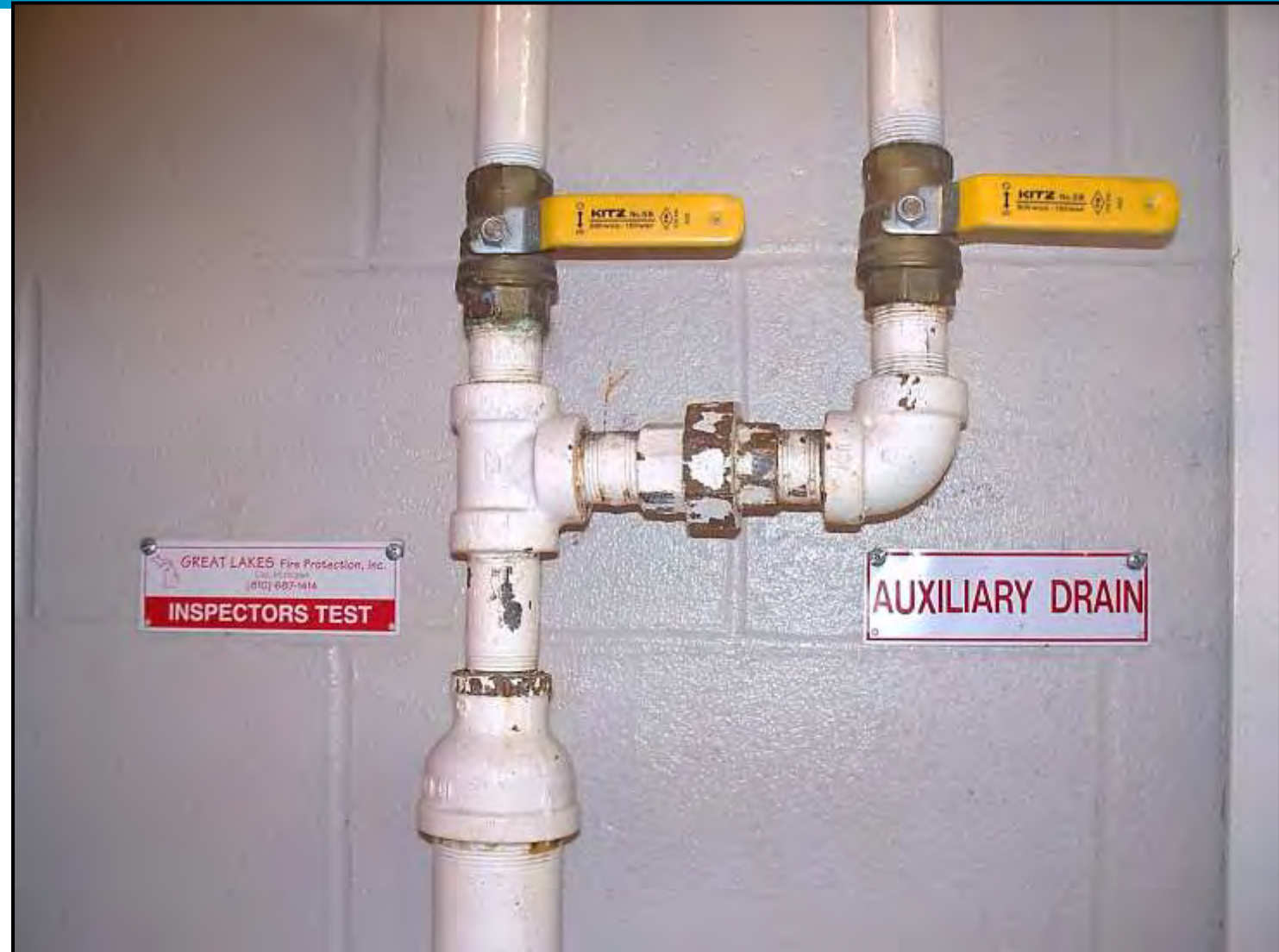
- Control Valve
- Identifies portion of the building served
- Multiple valves



FINAL WALKTHROUGH

Signage

- Test connections
- Drains



FINAL WALKTHROUGH

Signage

- Test & Drain



FINAL WALKTHROUGH

Signage

- Hydraulic Nameplate
 - Installed by contractor
 - Install near or on valve:
 - Alarm valve / Wet system
 - Dry
 - Preaction
 - Deluge

Hydraulically Calculated System

This system as shown on _____

company print no _____ dated _____

for _____

at _____ contract no _____

is designed to discharge at a rate of _____ gpm
(L/min) per sq ft (m²) of floor area over a maximum area of _____ sq ft (m²) when supplied
with water at the rate of _____ gpm (L/min)
at _____ psi (bars) at the base of the riser

Hose stream allowance of _____ gpm (L/min)

is included in the above.

Occupancy classification _____

Commodity classification _____

Maximum storage height _____

Installed by _____

FINAL WALKTHROUGH

Signage

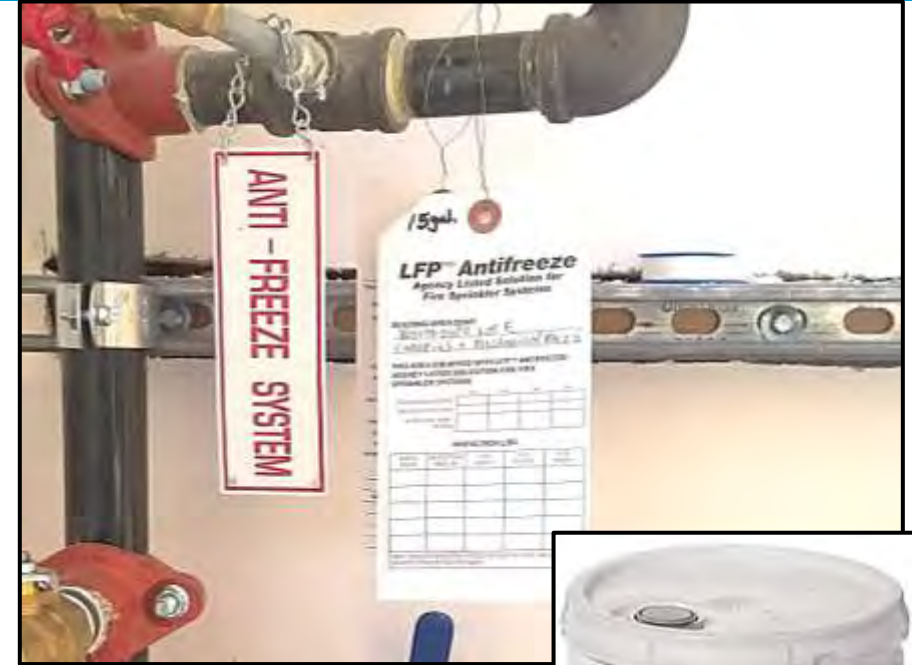
- General Information Sign
 - Installed by contractor
 - System control riser, antifreeze loop and auxiliary control valves.
- Required by NFPA 25 also



FINAL WALKTHROUGH

Signage

- Antifreeze systems
 - Placard on antifreeze system near main valve:
 - Manufacturer, type & brand
 - Concentration by volume
 - Volume used
 - Remote antifreeze systems require placard on system riser:
 - Number of remote antifreeze systems
 - Locations of remote antifreeze systems



FINAL WALKTHROUGH

Low Point Drains

- Low point drains shall have a sign at the dry pipe or preaction valve:
 - Indicating the number of low point drains
 - Location of each individual drain
- The required General Information Sign addresses this

SPRINKLER SYSTEM — GENERAL INFORMATION		
for _____		

High-piled storage: <input type="checkbox"/> Yes <input type="checkbox"/> No	Date: _____	
Rack storage: <input type="checkbox"/> Yes <input type="checkbox"/> No	Flow test data:	
Commodity class: _____	Static: _____ psi	
Max. storage height: _____ ft.	Residual: _____ psi	
Aisle width (min.): _____ ft.	Flow: _____ gpm	
Encapsulation <input type="checkbox"/> Yes <input type="checkbox"/> No	Pitot: _____ psi	
Solid shelving: <input type="checkbox"/> Yes <input type="checkbox"/> No	Date: _____	
Flammable/combustible liquids: <input type="checkbox"/> Yes <input type="checkbox"/> No	Location: _____	
Other storage: <input type="checkbox"/> Yes <input type="checkbox"/> No		
		Location of aux/low point drains: _____ _____ _____
Hazardous materials: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Idle pallets: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Antifreeze systems <input type="checkbox"/> Yes <input type="checkbox"/> No		
Location: _____	Original main drain test results:	
Dry or aux systems <input type="checkbox"/> Yes <input type="checkbox"/> No	Static: _____ psi	
Location: _____	Residual: _____ psi	
Where injection systems are used to treat MIC or corrosion:		
Type of chemical: _____	Concentration: _____	For proper disposal, see: _____
Name of contractor or designer: _____		
Address: _____		
Phone: _____		

FINAL WALKTHROUGH

Fire Department Connections (FDC)

- Signs on all FDC's
 - FDC services only a portion of a building, sign shall indicate portions of the building served
 - Pressure over 150 psi
- Raised letters of 1 inch
 - Automatic Sprinklers
 - Standpipes



FINAL WALKTHROUGH

Stock of Spare Sprinklers

- Minimum number of spare sprinklers
 - Under 300 sprinklers in premises: Min 6
 - 300-1000 sprinklers in premises: Min 12
- Sprinklers shall correspond to types and temperatures of installed sprinklers
- Kept in cabinet in conditioned space
- One wrench for each type
- List provided in cabinet
 - Head legend from drawing has the info



UH OH!

- What Happened?
 - Write it down for correction



CASA 2024 ANNUAL CONFERENCE

2024 CASA Annual Conference & Trade Show

Sunday June 2nd –Tuesday June 4th

Delta St. John's, NL

***FREE DAY PASS REGISTRATION* Tuesday June 4th**

<https://www.casa-firesprinkler.org/>



CASA 2024 LIVE VIRTUAL EDUCATIONAL SEMINARS

2024 CASA Live Virtual Educational Seminars

- Overview of NFPA 24 -Installation of Private Fire Service Mains -Tuesday July 9, 2024
- Overview of Proper Acceptance Testing / Commissioning of Sprinkler Systems/Standpipes/Fire Pumps -Tuesday July 30, 2024

<https://www.casa-firesprinkler.org/>

CASA 2024 LIVE VIRTUAL EDUCATIONAL SEMINARS

2024 CASA Live Virtual Educational Seminars

- Update and Best Practices on AFFF Foam -Tuesday October 8, 2024
- Sprinkler System Plan Review -Tuesday November 5, 2024
- Pumps for Fire Protection Seminar -Overview of NFPA 20 -Tuesday November 19, 2024
- Standpipe Systems for Fire Protection -Overview of NFPA 14 -Tuesday December 10, 2024

<https://www.casa-firesprinkler.org/>





THANK YOU!!

Any questions??

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