

DYNAMIC
Fire Protection Systems, Inc.



**Rio Vista Condo's
305 Society Drive
Telluride, CO 81435**

Inspection Date: 8/27/2012

Explanation of "NO" Answers:

General Information Section:

- f. All new additions, modifications or areas within the building do not appear to be properly protected.
- i. The spare head box with appropriate spare heads and head wrench is missing.
- j. The sprinkler heads are in bad condition, are obstructed, are recalled or not free of corrosion and loading.
- n. The system does not properly indicate the hydraulic design criteria or is it affixed to the riser.

Control Valves Section:

- a. The system control valves are not sealed, locked or supervised.

Water Supplies Section:

- c. The main drains do not allow for full port opening of the valve.

Fire Department Connection Section:

None Noted

General Alarms Section:

None Noted

Dry / Pre-action Systems Section:

Not Applicable

Antifreeze Systems Section:

- a. The freeze point level readings are at unacceptable levels.

Recommendations:

- 1. Replace the “CSC – GB LFII Voluntary Recalled” sprinkler heads in the Main Mechanical Room and throughout Water Heater closets and Laundry closets. NFPA-25, 2011 – Section 4.1.4**

4.1.4* Corrections and Repairs.

A.4.1.4 Recalled products should be replaced or remedied. Remedies include entrance into a program for scheduled replacement. Such replacement or remedial product should be installed in accordance with the manufacturer’s instructions and the appropriate NFPA installation standards. A recalled product is a product subject to a statute or administrative regulation specifically requiring the manufacturer, importer, distributor, wholesaler, or retailer of a product, or any combination of such entities, to recall the product, or a product voluntarily recalled by a combination of such entities.

(see website noted below for more information)

<http://www.cpsc.gov/cpscpub/prerel/prhtml07/07169.html>

LFII

- 2. Install sprinklers in accordance with their listing throughout the commercial spaces where residential heads exist. NFPA-13, 2010 – Section 8.3 “Use of Sprinklers” and Section 8.3.1 “General” and Section 8.3.1.1**

8.3.1.1* Sprinklers shall be installed in accordance with their listing.

- 3. Replace the painted sprinkler heads in Unit A1.**
NFPA-25, 2011 – Section 5.2 “Inspection” and Section 5.2.1 “Sprinklers” and Section 5.2.1.1.2 and 5.2.1.1.4

5.2.1.1.2 Any sprinkler that shows signs of any of the following shall be replaced:

- (1) Leakage
- (2) Corrosion
- (3) Physical damage
- (4) Loss of fluid in the glass bulb heat responsive element
- (5)* Loading

- 4. Install spare sprinkler head wrench in spare head box.**
NFPA-13, 2010 – Section 6.2.9 “Stock of Spare Sprinklers” and Sections 6.2.9.1 6.2.9.2, 6.2.9.3, 6.2.9.6 and 6.2.9.7

6.2.9 Stock of Spare Sprinklers.

6.2.9.1* A supply of at least six spare sprinklers (never fewer than six) shall be maintained on the premises so that any sprinklers that have operated or been damaged in any way can be promptly replaced.

6.2.9.2 The sprinklers shall correspond to the types and temperature ratings of the sprinklers in the property.

6.2.9.3 The sprinklers shall be kept in a cabinet located where the temperature to which they are subjected will at no time exceed 100°F (38°C).

6.2.9.4 Where dry sprinklers of different lengths are installed, spare dry sprinklers shall not be required, provided that a means of returning the system to service is furnished.

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6.2.9.5 The stock of spare sprinklers shall include all types and ratings installed and shall be as follows:

- (1) For protected facilities having under 300 sprinklers — no fewer than six sprinklers
- (2) For protected facilities having 300 to 1000 sprinklers — no fewer than 12 sprinklers
- (3) For protected facilities having over 1000 sprinklers — no fewer than 24 sprinklers

6.2.9.6* One sprinkler wrench as specified by the sprinkler manufacturer shall be provided in the cabinet for each type of sprinkler installed to be used for the removal and installation of sprinklers in the system.

6.2.9.7 A list of the sprinklers installed in the property shall be posted in the sprinkler cabinet.

6.2.9.7.1* The list shall include the following:

- (1) Sprinkler Identification Number (SIN) if equipped; or the manufacturer, model, orifice, deflector type, thermal sensitivity, and pressure rating
- (2) General description
- (3) Quantity of each type to be contained in the cabinet
- (4) Issue or revision date of the list

5. Install new system hydraulic calculation tag at riser.

NFPA-13, 2010 – Section 24.5 “Hydraulic Design Information Sign” and 24.5.1 and 24.5.2

24.5.1 The installing contractor shall identify a hydraulically designed sprinkler system with a permanently marked weatherproof metal or rigid plastic sign secured with corrosion-resistant wire, chain, or other approved means. Such signs shall be placed at the alarm valve, dry pipe valve, preaction valve, or deluge valve supplying the corresponding hydraulically designed area.

24.5.2 The sign shall include the following information:

- (1) Location of the design area or areas
- (2) Discharge densities over the design area or areas
- (3) Required flow and residual pressure demand at the base of the riser
- (4) Occupancy classification or commodity classification and maximum permitted storage height and configuration
- (5) Hose stream allowance included in addition to the sprinkler demand
- (6) The name of the installing contractor

- 6. System “Main Drain” on riser to upper level systems does not allow for full open flow test of water supply and should be piped to a drain.
NFPA-13R, 201 0 – Section 6.9 “Drains”, Section 6.9.1, and A.6.9**

6.9.1 Each sprinkler system shall have a drain on the system side of the control valve.

A.6.9 These connections should be installed so that the valve can be opened fully and for a sufficient time period to ensure a proper test without causing water damage. The test connection should be designed and sized to verify the sufficiency of the water supply and alarm mechanisms.

- 7. Install supervision or lock system control valves on backflow device.
NFPA-13, 2010 – Section 8.16.1.1.2 Supervision and Section 8.16.1.1.2.1**

8.16.1.1.2* Supervision.

8.16.1.1.2.1 Valves on connections to water supplies, sectional control and isolation valves, and other valves in supply pipes to sprinklers and other fixed water-based fire suppression systems shall be supervised by one of the following methods:

- (1) Central station, proprietary, or remote station signaling service
- (2) Local signaling service that will cause the sounding of an audible signal at a constantly attended point
- (3) Valves locked in the correct position
- (4) Valves located within fenced enclosures under the control of the owner, sealed in the open position, and inspected weekly as part of an approved procedure

- 8. Install U. L. Listed Thermal Expansion Tank on the antifreeze system.
NFPA-13, 2010 – Section 7.6.3 “Arrangement of Supply Piping and Valves” and 7.6.3.3**

7.6.3.3* Where the connection between the antifreeze system and the wet pipe system incorporates a backflow prevention device, and the conditions of 7.6.3.5 are not met, a listed expansion chamber shall be provided to compensate for thermal expansion of the antifreeze solution as illustrated in Figure 7.6.3.3.

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7.6.3.5 The requirements of paragraphs 7.6.3.1, 7.6.3.2, and 7.6.3.3 shall not apply where the following three conditions are met:

- (1) The antifreeze system is provided with an automatic pressure pump or other device or apparatus to automatically maintain a higher pressure on the system side than on the supply side of the water supply check valve separating the antifreeze system from the water supply.
- (2) Provision is made to automatically release solution to prevent overpressurization due to thermal expansion of the solution.
- (3) Provision is made to automatically supply premixed solution as needed to restore system pressure due to thermal contraction.

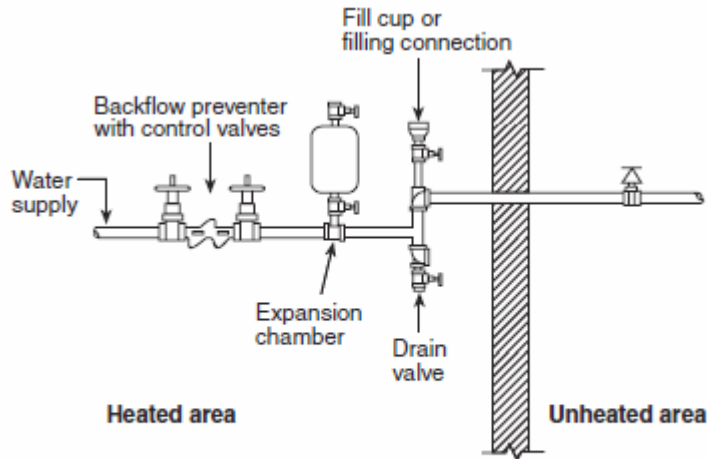


FIGURE 7.6.3.3 Arrangement of Supply Piping with Back-flow Device.

9. Replace leaking and or damaged FDC check valve.

NFPA-25, 2011 – Section 13.1.1 “Minimum Requirements”, and Section 13.1.1.1 and 13.3.2.2

13.1.1.1 This chapter shall provide the minimum requirements for the routine inspection, testing, and maintenance of valves, valve components, and trim.

13.3.2.2* The valve inspection shall verify that the valves are in the following condition:

- (1) In the normal open or closed position
- (2)* Sealed, locked, or supervised
- (3) Accessible
- (4) Provided with correct wrenches
- (5) Free from external leaks
- (6) Provided with applicable identification

NOTE: “Valves found to be leaking shall be repaired or replaced.”

10. Repair or Replace leaking and or damaged Combination Main Drain / Inspectors Test Valve.

NFPA-25, 2011 – Section 13.1.1 “Minimum Requirements”, and Section 13.1.1.1 and 13.3.2.2

13.1.1.1 This chapter shall provide the minimum requirements for the routine inspection, testing, and maintenance of valves, valve components, and trim.

13.3.2.2* The valve inspection shall verify that the valves are in the following condition:

- (1) In the normal open or closed position
- (2)* Sealed, locked, or supervised
- (3) Accessible
- (4) Provided with correct wrenches
- (5) Free from external leaks
- (6) Provided with applicable identification

NOTE: “Valves found to be leaking shall be repaired or replaced.”

11. Recharge antifreeze system – NFPA-13D Glycol or Glycerin

Recharge the antifreeze system to acceptable freeze point level for the locality. NFPA-13D, 2010 TIA 10-2, Section 8.3.3“Antifreeze Systems” and Section 8.3.3.2.1.1

8.3.3.2.1.1 For existing systems, antifreeze solutions shall be limited to premixed antifreeze solutions of glycerin (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 50% by volume, propylene glycol at a maximum concentration of 40% by volume, or other solutions listed specifically for use in fire protection systems.”

Table A.8.3.3.2.1

Table A.8.3.3.2.1 Properties of Glycerine and Propylene Glycol

| Material | Solution (by volume) | Specific Gravity at 60°F (15.6°C) | Freezing Point | |
|--|-------------------------|--------------------------------------|----------------|-------|
| | | | °F | °C |
| Glycerine (C.P. or U.S.P. grade) | 50% water | 1.145 | -20.9 | -29.4 |
| Hydrometer scale 1.000 to 1.200 | | | | |
| Propylene glycol | 60% water | 1.034 | -6 | -21.1 |
| Hydrometer scale 1.000 to 1.200 (subdivisions 0.002) | | | | |

C.P.: Chemically Pure; U.S.P.: United States Pharmacopoeia 96.5%.

(NFPA-13D – Glycol Level **“Higher”** Than Recommended Level for Locality)

NOTE: NFPA – Maximum Antifreeze Concentration Levels

Recent NFPA-25 code changes do not allow for glycol and water mixtures greater than a 38/62 concentration. This concentration ratio provides only a - 6° degree freeze point level of protection. Your current freeze point level in the fire sprinkler system is **A1= +30°F, B1= +20°F, C1= +5°F, and D1= +30°F.**

The new NFPA-25 fire code amendment requires that the current mixture in the system be drained and “lowered” to - 6° degrees to meet the current safety requirements for antifreeze fire sprinkler systems.

Due to the freezing temperatures for this locality and the inability to provide other forms of freeze protection on “existing” systems it may not be desirable to “lower” the system freeze point level to only – 6° degrees as required by the new NFPA-25 Standard for Inspection, Testing and Maintenance of Water Based Fire Protection Systems.

Notification of this system condition to the owner or his designated representative is required and noted in the inspection report as a deficiency and should be corrected in accordance with NFPA-25.

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Lower freeze point levels can be obtained by changing the antifreeze mixture to a glycerin and water mixture. Concentrations of glycerin and water in a 48/52 mixture will provide a freeze point level of -15° degrees.

The following action should be taken with respect to the operation and maintenance of your automatic antifreeze fire suppression system:

NOTE: The current freeze point level obtained during this inspection indicates a very high possibility of a future freezing condition.

Consideration should be given to recharging the sprinkler system with the new required glycol mixture level to obtain a - 6° freeze point level or replacing the glycol mixture with a glycerin mixture to obtain a -15° freeze point level in accordance with NFPA-25 guidelines.

- 12. Replace 1=2” and 3=1” antifreeze system isolation check valves that appear to be drilled to prevent dilution of antifreeze mixture due to water pressure migration from public water system during activation of fire sprinkler “Inspectors Test Connection” procedure.**

NFPA-25, 2011 – Section 5.3.3 “Water Flow Alarm Devices” and Section 5.3.3.3

5.3.3.3 Testing waterflow alarm devices on wet pipe systems shall be accomplished by opening the inspector’s test connection.

NOTE:

The inspector’s test connection should be arranged to facilitate testing. The valve should be readily accessible and the discharge should be directed so that the flow of water does not cause damage or unsafe conditions. An inspector’s test valve that cannot be accessed, or conditions where the flow discharges to a location that does not allow testing, are situations that should be corrected.

- 13. Add sprinkler protection in Unit D1 hot water heater closet where the fuel-fire equipment is located.**

NFPA-13D, 2010 – Section 8.6 “Location of Sprinklers” and Section 8.6.5.1

8.6.5.1 When fuel-fired equipment is present, at least one quick-response intermediate temperature sprinkler shall be installed above the equipment.

14. Repair and or replace the damaged, leaking or corroded pipe in Unit D1 in the attic space above the bathroom.

NFPA-25, 2011 – Section 5.2.2 “Pipe and Fittings” and Section 5.2.2.1

5.2.2.1 Pipe and fittings shall be in good condition and free of mechanical damage, leakage, and corrosion.

15. Install missing sprinkler head “Escutcheon(s)” on the sprinkler head(s) in Unit B1 in the bedroom and the water heater closet, and Unit B3 in the bathroom in accordance with their manufacturer’s listing.

NFPA-13, 2010 – Section 6.2.7 “Escutcheons and Cover Plates” and Section 6.2.7.1, 6.2.7.2 and 6.2.7.3

6.2.7 Escutcheons and Cover Plates.

6.2.7.1 Plates, escutcheons, or other devices used to cover the annular space around a sprinkler shall be metallic or shall be listed for use around a sprinkler.

6.2.7.2* Escutcheons used with recessed, flush-type, or concealed sprinklers shall be part of a listed sprinkler assembly.

6.2.7.3 Cover plates used with concealed sprinklers shall be part of the listed sprinkler assembly.

Adjustments or Corrections Conducted:

1. None noted.

Reports:

The inspection and/or test report completed by Dynamic Fire Protection Systems, Inc. shall be given to the owner or his designated representative, with a copy to the authority having jurisdiction. The Report and recommendations by Dynamic Fire Protection Systems, Inc. are only advisory in nature and are intended to assist the owner or his designated representative in reducing the possibility of loss to property by indicating obvious defects or impairments noted to the system and equipment inspected and/or tested which require consideration. They are not intended to imply that all other defects, hazards or aspects of the system and equipment are under control at the time of the inspection. Final responsibility for the condition and operation of the fire protection system and equipment lies with owner or his designated representative.