

SANTA ROSA FIRE DEPARTMENT

FIRE PREVENTION BUREAU

PLAN REVIEW

July 1, 2010



SPRINKLER SYSTEM PLAN REVIEW TENANT IMPROVEMENT PER NFPA 13 - 2002 EDITION

Address:		Permit #:
Inspector:	Date:	Status:
Inspector:	Date:	Status:
A-Approved; AC-Approved w/comments; I-Incomplete; D-Denied		

This Checklist outlines general requirements. Information contained herein applies to typical instances and may not address all circumstances.

FILE REVIEW

- FEES** – Permit fees entered in Permits Plus. 3rd or greater checks require an hourly fee for the review.

PLAN REVIEW

- | | Y | N | |
|-----|--------------------------|--------------------------|--|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | Working plans shall include indicated scale, on sheets of uniform size, with a plan of each floor and shall show the following data: |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | Name of owner and occupant |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | Location, including street address |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | North arrow |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | Ceiling construction |
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | Full height cross section (s) for clarity as needed including ceiling and roof construction |
| 7. | <input type="checkbox"/> | <input type="checkbox"/> | Location of fire walls |
| 8. | <input type="checkbox"/> | <input type="checkbox"/> | Location of partitions |
| 9. | <input type="checkbox"/> | <input type="checkbox"/> | Occupancy of each area or room |
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | Location and size of concealed spaces, attics, closets and bathrooms |
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | Any small enclosures in which no sprinklers are to be installed |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | Size of city water main in street, pressure, and whether dead-end or circulating and, if dead-end, direction and distance to nearest circulating main, and city main test results, including elevation of test hydrant |
| 13. | <input type="checkbox"/> | <input type="checkbox"/> | Make, manufacturer, type, temperature rating and nominal orifice size of sprinklers |

SPRINKLERS

- | | Y | N | |
|-----|--------------------------|--------------------------|--|
| 14. | <input type="checkbox"/> | <input type="checkbox"/> | Total number of each type of sprinkler is noted, 8.3.2.1.
If the hazard classification of the occupancy is changed, the temperature of rating of sprinklers shall be evaluated in accordance with Section 8.3.2.6. |
| 15. | <input type="checkbox"/> | <input type="checkbox"/> | Light hazard occupancies shall have quick-response or residential sprinklers, 8.3.3.1, IFC 903.3.2. |
| 16. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinkler are located correctly for branch line spacing and area of protection limits, ceiling and roof cross sectional views are provided for clarification, 14.1.3. |
| 17. | <input type="checkbox"/> | <input type="checkbox"/> | For each type of sprinkler the K factor, temperature rating, and orifice size are provided, 14.1.3.(12). |
| 18. | <input type="checkbox"/> | <input type="checkbox"/> | Each sprinkler coverage area is installed in accordance with its area limitations or its listing, 8.6.2.2, Table 8.6.2.2.1 (a-c). |
| 19. | <input type="checkbox"/> | <input type="checkbox"/> | Specialty sprinklers, extra coverage, early suppression fast response, large drop, sidewall, etc. comply with the standard and listing limitations, 6.1.1 and 8.4.1–8.4.9. |
| 20. | <input type="checkbox"/> | <input type="checkbox"/> | Maximum perpendicular distance to the walls is not greater than 1/2 of allowable distance between sprinklers, 8.6.3.2 and Tables 8.6.2.2.1(a through d), for sidewall sprinklers, 8.7.3.2. and Table 8.7.2.2.1. |
| 21. | <input type="checkbox"/> | <input type="checkbox"/> | Standard sprinkler spacing from vertical obstructions complies with Table 8.6.5.1.2 and for floor mounted obstructions, Table 8.6.5.2.2. |
| 22. | <input type="checkbox"/> | <input type="checkbox"/> | Sidewalls sprinkler spacing for front obstructions refer to Table 8.7.5.1.3, for a side obstruction refer to Table 8.7.5.1.4, and for floor mounted obstructions refer to Table 8.7.5.2.2. |
| 23. | <input type="checkbox"/> | <input type="checkbox"/> | Extended coverage uprights and pendent spacing for ceiling or wall obstructions refer to Table 8.8.5.1.2 and for floor mounted obstructions refer to Table 8.8.5.2.2. |
| 24. | <input type="checkbox"/> | <input type="checkbox"/> | Extended coverage sidewall spacing for front obstructions refer to Table 8.9.5.1.3 and for floor mounted obstructions, Table 8.9.5.2.2. |
| 25. | <input type="checkbox"/> | <input type="checkbox"/> | Residential upright and pendent sprinkler spacing from vertical obstructions complies with Table 8.10.6.1.2 and for floor mounted obstructions, Table 8.10.6.2.2. |
| 26. | <input type="checkbox"/> | <input type="checkbox"/> | Residential sidewall sprinkler spacing from ceiling or hanging obstructions complies with Table 8.10.7.1.3 and for floor mounted obstructions, Table 8.10.7.2.2. |
| 27. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinkler coverage shall be provided beneath obstructions greater than 4 ft. wide, 8.5.5.3.1. |
| 28. | <input type="checkbox"/> | <input type="checkbox"/> | Baffles are provided for sprinklers less than 6 ft. apart in accordance with Section 8.6.3.4.2. |
| 29. | <input type="checkbox"/> | <input type="checkbox"/> | Locations or conditions requiring special consideration, 8.14. <ul style="list-style-type: none">○ concealed spaces, for the 15 omissions, see 8.14.1.2.○ vertical shafts, 8.14.2.○ stairways, 8.14.3. |

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- vertical openings, 8.14.4.
- elevator hoistways and machine rooms, 8.14.5.
- spaces under ground floors, exterior docks, and platforms, 8.14.6.
- exterior roof and canopy, 8.14.7.
- dwelling unit, 8.14.8.
- library stack room, 8.14.9.
- electrical equipment, 8.14.10.
- ceilings: open-grid, drop-out, 8.14.12 and 8.14.13.
- stages, 8.14.15.

- | | Y | N | |
|-----|--------------------------|--------------------------|---|
| 30. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinkler is provided at top of shaft, refer to exceptions, shafts with combustibile surfaces require coverage at alternate levels, accessible noncombustible shaft has sprinkler at bottom, 8.14.2. |
| 31. | <input type="checkbox"/> | <input type="checkbox"/> | Vertical shaft has sprinklers at top opening, above bottom opening and alternate levels when it has combustibile surfaces, 8.14.2.1, 8.14.2.2. |
| 32. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are provided beneath combustibile stairs, 8.14.3.1. |
| 33. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are provided at the top of the stairway, under the first landing above the stairway shaft bottom when the shaft and stairs are noncombustibile, 8.14.3.2. |
| 34. | <input type="checkbox"/> | <input type="checkbox"/> | Closely spaced sprinklers with draft stops are provided around unenclosed floor openings except large openings like found in malls or atriums, and openings between floors of a common dwelling unit, 8.14.4.1 and 8.14.4.2. |
| 35. | <input type="checkbox"/> | <input type="checkbox"/> | Elevator shaft has a sprinkler within 2 ft. of the shaft floor unless the shaft is noncombustibile and there are no combustibile hydraulic fluids, 8.14.5. |
| 36. | <input type="checkbox"/> | <input type="checkbox"/> | Ordinary or intermediate temperature sprinklers are in the elevator machine room or at the top of the elevator shaft, 8.14.5.1- 8.14.5.1.5. |
| 37. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are provided under combustibile ground floor, exterior dock, and platforms, 8.14.6. |
| 38. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are provided under roofs and canopies unless constructed of noncombustibile or limited combustibile materials, less than 4 ft. wide, and no storage, refer to exceptions 8.14.7.1–8.14.7.4 |
| 39. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are not required in noncombustibile dwelling unit bathrooms, less than 55 sq. ft. or limited combustibile with a 15 minute thermal barrier, except in nursing homes (I-1 and I-2) and in bathrooms that have direct access into corridors and exitways used by the public, 8.14.8.1. |
| 40. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are not required in hotel or motel dwelling unit clothes closet, pantries, or linen closets less than 24 sq. ft. and the least dimension is not greater than 3 ft., 8.14.8.2. |
| 41. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are provided in every aisle and at every tier stack, distance is not more than 12 ft. in library stack rooms, 8.14.9. |

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- | | Y | N | |
|-----|--------------------------|--------------------------|--|
| 42. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers are provided in electrical equipment rooms, exception: the room is dedicated use, has dry type equipment, 2 hour equipment enclosures, and no combustibile storage, 8.14.10. Also consult the exceptions pertaining to spaces containing telecommunication equipment and associated power supplies as specified in CFC section 903.2. |
| 43. | <input type="checkbox"/> | <input type="checkbox"/> | Open grid ceilings shall not be installed under sprinklers, unless the grid opening and sprinkler placement criteria of section 8.14.12 are met. |
| 44. | <input type="checkbox"/> | <input type="checkbox"/> | Drop-out ceilings are installed under sprinklers in accordance with their listing, and sprinklers are not located below the ceilings, 8.14.13. |
| 45. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinklers for stages shall be provided in accordance with section 8.14.15. |
| 46. | <input type="checkbox"/> | <input type="checkbox"/> | Proscenium openings for stages shall be protected in accordance with section 8.14.15.2. |

HYDRAULIC CALCULATIONS:

- | | | | |
|-----|--------------------------|--------------------------|---|
| 47. | <input type="checkbox"/> | <input type="checkbox"/> | Indicate the calculation method used: density area method or room design method, 11.2.3.2. and .3. |
| 48. | <input type="checkbox"/> | <input type="checkbox"/> | Reference points in the calculation worksheet match with points on the plans, the occupancy hazard classifications are correct for the occupancy or use, 14.1.3. |
| 49. | <input type="checkbox"/> | <input type="checkbox"/> | If design area adjustments are made, the selected shall be indicated, 11.2.3.2.7. |
| 50. | <input type="checkbox"/> | <input type="checkbox"/> | Designs using QR sprinklers shall be in accordance with section 11.2.3.2.3. |
| 51. | <input type="checkbox"/> | <input type="checkbox"/> | Pipe size and length references in the calculation worksheet match the plans, 14.1.3(19). |
| 52. | <input type="checkbox"/> | <input type="checkbox"/> | Sloped ceiling may require a 30 percent increase of design area, 11.2.3.2.4. |
| 53. | <input type="checkbox"/> | <input type="checkbox"/> | Sprinkler data sheet information matches information on the plans. |
| 54. | <input type="checkbox"/> | <input type="checkbox"/> | Water flow information is provided with static PSI, residual PSI, and available GPM at 20 PSI residual with graphed results. |
| 55. | <input type="checkbox"/> | <input type="checkbox"/> | Density and design areas information are provided and comply with 12 conditions listed in section 11.2.3.1.8, Figure 11.2.3.1.5. |
| 56. | <input type="checkbox"/> | <input type="checkbox"/> | Calculations are correct: static PSI, pipe length, GPM, calculated K-factor values for drops or branch lines, elevation data, hose allowance, friction loss, and equivalent pipe and fitting lengths, 11.2.3. |
| 57. | <input type="checkbox"/> | <input type="checkbox"/> | For the room design method the design area includes the most demanding room and if any, adjacent connecting compartments, 14.4.4.1.2. |
| 58. | <input type="checkbox"/> | <input type="checkbox"/> | A minimum of two summary calculations are provided for a grid system, refer to the one exception, 14.4.4.2. |
| 59. | <input type="checkbox"/> | <input type="checkbox"/> | Additional calculations may be required if the building design and room uses do not make the most demanding area obvious. |
| 60. | <input type="checkbox"/> | <input type="checkbox"/> | Legend for calculation abbreviations is provided. |
| 61. | <input type="checkbox"/> | <input type="checkbox"/> | Calculations are provided for extra hazard occupancies, deluge automatic sprinkler systems, and exposure protection systems. |

62. **Y** **N** Dry pipe and double interlock pre-action design areas are increased 30 percent but the density remains the same (11.2.3.2.5), use of high-temp sprinklers in extra hazard occupancies may reduce design area by 25 percent but not less than the area specified in 11.2.3.2.6.

REQUIRED INSPECTIONS:

63. **Weld and Piping Inspection** – Pipe must be on the ground and set for inspection (not bundled):
- Inspection of welds and welders stamps that are next to all welds.
 - Ensure all of the coupons are removed from the holes in the weld-o-lets
64. **Overhead Hydrostatic & Rough-In Inspection**– The system shall be pressurized at 200 psi for two hours with no drop in pressure while piping and bracking is inspected.
65. **Fire Sprinkler Final** - A main Drain, Inspector Test and final walk-through of sprinkler coverage shall be performed.
- The main drain valve shall be opened and remain open until the pressure stabilizes.

Inspections shall be scheduled a minimum of 48 hours in advance. Directions for scheduling are found at:
<http://ci.santa-rosa.ca.us/news/Pages/AutomatedFireInspectionRequestSystem.aspx>