

SANTA ROSA FIRE DEPARTMENT

FIRE PREVENTION BUREAU

INSPECTION CHECKLIST

July 1, 2010



HIGH PILED STORAGE

Address:		Permit #:
Inspector:	Date Inspected:	Status:
Inspector:	Date Inspected:	Status:
A-Approved, R-Re-inspection Required		

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

FILE REVIEW

- | | Y | N | |
|----|--------------------------|--------------------------|---|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | Verify approved plans and permit on site |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | Verify contractor information with permit |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | Review any Alternate Methods and Materials and Environmental Impact Report details. |

FIELD INSPECTION

FIRE PROTECTION SYSTEMS

4. Verify separate plans and permits have been submitted for any fire protection systems installed due to requirements of HPS design.

BUILDING ACCESS

5. CFC 2303.6 - Verify fire access roads, designated fire lanes and all public and private fire hydrants, surrounding the facility.
6. CFC 2303.6 - Verify building access if required.
 Where access doors are required verify they are accessible.
7. CFC 2306.8 – Verify smoke and heat vents.
8. CFC 910.3 – Smoke and heat vents shall be UL listed and are capable of being operated by approved automatic and mechanical means.
9. CFC 910.3.2.1 – Gravity operated drop out vents shall drop out within 5 minutes of the vent cavity being exposed to a 500 degree (F) simulated fire.
10. CFC 910.3.2.2 – In sprinklered buildings smoke and heat vents shall operate automatically and at a temperature a minimum of 1 degree lower than the sprinklers.

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- | Y | N | |
|----------|--------------------------|---|
| 11. | <input type="checkbox"/> | <input type="checkbox"/> CFC 910.3.2.3 – Other than drop out vents, in an unsprinklered building smoke and heat vents shall automatically open at a temperature between 100-220 degrees F above ambient. |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> CFC 910.3.3 & 910.3.4 – Vents shall not be less than 16 square feet with no dimension less than 4 feet and be located no closer than 20 feet from lot line and fire walls or 10 feet from barriers walls. Vents shall be uniformly located above HPS area. |
| 13. | <input type="checkbox"/> | <input type="checkbox"/> CFC 910.3.5 – Verify draft curtains, are made of non-combustible material and are not required in areas protected by ESFR sprinklers. |
| 14. | <input type="checkbox"/> | <input type="checkbox"/> CFC 2306.9.1.1 – Verify aisles: |
| 15. | <input type="checkbox"/> | <input type="checkbox"/> In sprinkler buildings are a minimum of 44 inches. |
| 16. | <input type="checkbox"/> | <input type="checkbox"/> Aisles shall be a minimum of 96 inches in HPS areas over 2500 sq/ft that are accessible to the public unless protected by a approved automatic sprinkler system. |
| 17. | <input type="checkbox"/> | <input type="checkbox"/> Aisles are a minimum 96 inches clear in public accessible areas where mechanical restocking methods are used or if the building is unsprinklered. |
| 18. | <input type="checkbox"/> | <input type="checkbox"/> CFC 2306.9.2 – Verify aisles extend from floor to ceiling. Rack supports and catwalks are acceptable at 6'8" clearance and don't interfere with Fire Dept hose stream trajectory. |

COMMODITY CLASSIFICATION

19. CFC 2304 – Verify commodity classification with approved plans (type I, II, III, IV, or High Hazard) or any plastics, encapsulated material.

STORAGE

20. CFC 2301.3 – Verify each high-piled storage area locations, dimensions, commodity type, storage arrangement type (i.e., solid pile, bin box, shelf, rack, etc.), aisles and exits.
21. CFC 2306.3.2.2 – Verify if 1 hr firewall is needed to separate commodity classification or storage area.
22. CFC 2307.3 – Verify maximum pile, shelf and palletized storage dimensions, volume & height for each storage array with approved plans.
23. CFC 2306.2 – Verify protection features such as fire detection, smoke and heat removal, draft curtains, and automatic sprinkler systems with approved plans and extend 15 feet beyond high piled storage area or to a permanent partition.
24. CFC SRCC 18-44 2306.8.1 – Verify location(s) and test inspections the 1-1/2" hose valve stations if required.
25. CFC 2306.8 – Verify if passageways have a Class I standpipe system.

SOLID PILED AND SHELF STORAGE

26. CFC 2307.3 – Verify pile storage dimensions are in accordance with approved plans.

RACK STORAGE

27. CFC 2308.1 – Verify if bin boxes exceeding 5-feet in any dimension are sure and considered in approved plans.

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- | | Y | N | |
|-----|--------------------------|--------------------------|--|
| 28. | <input type="checkbox"/> | <input type="checkbox"/> | CFC 2308.2.1 – Verify if plastic pallets or plastic shelves are used and protected by a specially engineered fire protection system unless UL 2335 listed. |
| 29. | <input type="checkbox"/> | <input type="checkbox"/> | CFC 2308.2.2 – Verify racks with solid shelving having an area greater than 32 square feet measure between flue spaces of all 4 areas of edge of shelf match approved plans and: |
| 30. | <input type="checkbox"/> | <input type="checkbox"/> | CFC 2308.3 – Have flue spaces in accordance with CFC table 2308.3 |
| 31. | <input type="checkbox"/> | <input type="checkbox"/> | CFC 2308.4 – protected steel columns in steel buildings |
| 32. | <input type="checkbox"/> | <input type="checkbox"/> | CFC 2308.5 – Verify if Extra High Racks storage systems are in place are approved by the fire code official and protected by additional special fire protection measures. |

AUTOMATED STORAGE

33. CFC 2309.8 – Verify carousel storage are provided with one of the following methods.
- A automatic smoke detection system that extends 15 beyond all areas of the unenclosed system, sounds a local alarm at the operators station and shuts down the system
 - A automatic smoke detection system inside the enclosed system, sounds a local alarm at the operators station and shuts down the system
 - Has a single dead-man type control that allows the operation of the carousel storage system only when operator is present.
 - Smoke detection systems have approved plans and are inspected.

TABLE 2306.2: GENERAL FIRE-PROTECTION AND LIFE-SAFETY REQUIREMENTS

Commodity Class	Size of High-Piled Storage Area ^a (square feet) (See Sections 2306.2 and 2306.4)	ALL STORAGE AREAS (See Sections 2306, 2307 and 2308) ^b					SOLID-PILED STORAGE, SHELF STORAGE AND PALLETIZED STORAGE (See Section 2307.3)		
		Automatic Fire-extinguishing System (See Section 2306.4)	Fire-detection System (See Section 2306.5)	Building Access (See Section 2306.6)	Smoke and Heat Removal (See Section 2306.7)	Draft curtains (See Section 2306.7)	Maximum Pile Dimension ^c	Maximum Permissible Storage Height ^d (feet)	Maximum Pile Volume (cubic feet)
I-IV	0-500	NR ^a	NR	NR ^a	NR	NR	NR	NR	NR
	501-2,500	NR ^a	Yes ⁱ	NR ^a	NR	NR	100	40	100,000
	2,501-12,000 Public Accessible	Yes	NR	NR ^a	NR	NR	100	40	400,000
	2,501-12,000 Nonpublic Accessible (Option 1)	Yes	NR	NR ^a	NR	NR	100	40	400,000
	2,501-12,000 Nonpublic Accessible (Option 2)	NR ^a	Yes	Yes	Yes ^j	Yes ^j	100	30 ^f	200,000
	12,001-20,000	Yes	NR	Yes	Yes ^j	NR	100	40	400,000
	20,001-500,000	Yes	NR	Yes	Yes ^j	NR	100	40	400,000
	500,000+ ^g	Yes	NR	Yes	Yes ^j	NR	100	40	400,000
High-hazard	0-500	NR ^a	NR	NR ^a	NR	NR	50	NR	NR
	501-2,500 Public Accessible	Yes	NR	NR ^a	NR	NR	50	30	75,000
	501-2,500 Nonpublic accessible (Option 1)	Yes	NR	NR ^a	NR	NR	50	30	75,000
	501-2,500 Nonpublic accessible (Option 2)	NR ^a	Yes	Yes	Yes ^j	Yes ^j	50	20	50,000
	2,501-300,000	Yes	NR	Yes	Yes ^j	NR	50	30	75,000
	300,001-500,000 ^h	Yes	NR	Yes	Yes ^j	NR	50	30	75,000

NR = Not Required

^a When fire sprinklers are required for reasons other than those in Chapter 23, the portion of the sprinkler system protecting the high-piled storage area shall be designed and installed in accordance with Sections 2307 and 2308.

^b For aisles, see Section 2306.9.

^c Piles shall be separated by aisles complying with Section 2306.9.

^d For storage in excess of the height indicated, special fire protection shall be provided in accordance with Footnote g when required by the chief. See also Chapters 28 and 34 for special limitations for aerosols and flammable and combustible liquids.

^e Section 503 shall apply for fire apparatus access.

^f For storage exceeding 30 feet in height, Option 1 shall be used.

^g Special fire-protection provisions including, but not limited to, fire protection of exposed steel columns; increased sprinkler density; additional in-rack sprinklers, without associated reductions in ceiling sprinkler density; or additional fire department hose connections shall be provided when required by the chief.

^h High-piled storage areas shall not exceed 500,000 square feet. A two-hour fire wall constructed in accordance with the California Building Code shall be used to divide high-piled storage exceeding 500,000 square feet in area.

ⁱ Not required when an automatic fire-extinguishing system is designed and installed to protect the high-piled storage area in accordance with Sections 2307 and 2308.

^j Not required when storage areas are protected by early suppression fast response (ESFR) sprinkler systems installed in accordance with NFPA 13.

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TABLE 910.3: REQUIREMENTS FOR DRAFT CURTAINS AND SMOKE AND HEAT VENTS^a (See Section 2306.7)

OCCUPANCY GROUP AND COMMODITY CLASSIFICATION	DESIGNATED STORAGE HEIGHT (feet)	MINIMUM DRAFT CURTAIN DEPTH (feet)	MAXIMUM AREA FORMED BY DRAFT CURTAINS (square feet)	VENT- AREA-TO FLOOR-AREA RATIO ^c	MAXIMUM SPACING OF VENT CENTERS (feet)	MAXIMUM DISTANCE TO VENTS FROM WALL OR DRAFT CURTAIN ^b (feet)
Group F-1 and S-1	-	0.2 x H ^a but ≥ 4	50,000	1:100	120	60
Commodity Classification I-IV (Option 1)	≤ 20	6	10,000	1:100	100	60
	> 20 ≤ 40	6	8,000	1:75	100	55
Commodity Classification I-IV (Option 2)	≤ 20	4	3,000	1:75	100	55
	> 20 ≤ 40	4	3,000	1:50	100	50
High-hazard (Option 1)	≤ 20	6	6,000	1:50	100	50
	> 20 ≤ 30	6	6,000	1:40	90	45
High-hazard (Option 2)	≤ 20	4	4,000	1:50	100	50
	> 20 ≤ 30	4	2,000	1:30	75	40

^a Requirements for rack storage heights in excess of those indicated shall be in accordance with Chapter 23. For solid-piled storage heights in excess of those indicated, an approved engineered design shall be used.

^b The distance specified is the maximum distance from any vent in a particular draft curtained area to walls or draft curtains which form the perimeter of the draft curtained area.

^c Where draft curtains are not required, the vent area to floor area ratio shall be calculated based on a minimum draft curtain depth of 6 feet (Option 1.)

^d "H" is the height of the vent, in feet above the floor.

TABLE 2308.3: REQUIRED FLUE SPACES FOR RACK STORAGE

RACK CONFIGURATION	FIRE SPRINKLER PROTECTION Storage Height		SPRINKLER AT THE CEILING WITH OR WITHOUT MINIMUM IN-RACK SPRINKLERS		IN-RACK SPRINKLERS AT EVERY TIER	NON-SPRINKLERED
			≤ 25 feet			
			Option 1	Option 2	> 25 feet	Any Height
Single-row Rack	Transverse Flue Space	Size ^b	3 inch	NA	3 inch	NR
		Vertically Aligned	NR	NA	Yes	NA
	Longitudinal Flue Space		NR	NA	NR	NR
Double-row Rack	Transverse Flue Space	Size ^b	6 inch ^a	3 inch	3 inch	NR
		Vertically Aligned	NR	NR	Yes	NA
	Longitudinal Flue Space		NR	6 inch	6 inch	NR
Multi-row Rack	Transverse Flue Space	Size ^b	6 inch	NA	6 inch	NR
		Vertically Aligned	NR	NA	Yes	NA
	Longitudinal Flue Space		NR	NA	NR	NR

NR = "not required." NA means "not applicable."

^a Three-inch transverse flue spaces shall be provided at least every 10 feet where ESFR sprinkler protection is provided.

^b Random variations are allowed, provided that the configuration does not obstruct water penetration.