

# SANTA ROSA FIRE DEPARTMENT

## FIRE PREVENTION BUREAU STANDARD



### SHELL BUILDING

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

#### **PURPOSE**

Shell buildings are often completed prior to tenants being identified for all building spaces or suites. This leaves the shell building, or large portions of the shell building, unoccupied and incomplete for extended periods of time until tenant improvements are completed. Because of the unfinished or incomplete nature of a shell building, it can present certain hazards to tenants and fire fighters. While the entire building may not be occupied, the entire building must comply with the same fire and life safety requirements as though it were entirely occupied. All required fire and life safety features must be installed, tested and approved prior to any tenant occupying any portion of the building. All fire sprinklers, fire alarms, exits, exit signs, exit hardware, emergency lighting, fire extinguishers and other such equipment must be provided and maintained in all spaces of the building, even while only a portion of the building may be occupied initially.

#### **CODE REFERENCES**

California Fire Code,  
California Building Code

#### **REQUIRED PERMITS - Separate permits are required for**

- Building Permit (construction)
- Conditional Use Permit (zoning)
- Fire Underground water supply
- Fire Sprinkler installation
- Fire Alarm installation

#### **FIRE DEPARTMENT CONDITIONS**

- The applicant is advised to review conditions and letters from the design and development process and incorporate those features into the submittal.
- As a part of the plan review process we verify that all fees have been paid.

#### **BUILDING ADDRESS SIGN - CFC 505.1**

- Address must be displayed on the building, on the high point of building, facing the addressed street, not obstructed by building or landscaping features. Other supplemental address signs, such as landmark signs at property entry points, may be required in addition to the building address sign, but cannot be used as a substitute for the address sign on the building. Suite or unit numbers must be displayed on front and back doors.
- 12" minimum height of address characters for building address, 6" minimum height for suites or units.
- Color of address characters must be contrasting with background.
- Address sign must be illuminated. Light source must be "on" continuously, or photo-cell controlled; timers are not acceptable. Light must be under the control of the addressed property (cannot use illumination from adjacent property or public source, such as street lights).

## **BUILDING ACCESS**

- Gates on access roads to the building must be approved by the Fire Department prior to installation.
- Access roads must be provided to within 150 feet of the exterior portions of the ground floor of the building, as measured by an approved route around the exterior of the building.
- The maximum grade of a Fire Access Road shall not exceed 15 percent (City Street Design Standards, Section VI, A3)
- Fire Access Roads shall have a minimum unobstructed vertical clearance of 13 feet, 6 inches.
- Fire Access Roads serving buildings two (2) stories or less in height must be a minimum of 20 feet in width. This road width provides the required access needed to accommodate operating fire apparatus and room for emergency exiting of private vehicles.
- Fire Access Roads serving buildings three (3) or more stories, or in excess of 35 feet in height must be a minimum of 26 feet in width. This road width provides the required access needed to accommodate aerial apparatus required for structures of this height and room for emergency exiting of private vehicles.
- Apparatus access 15 to 30 feet from building for buildings over 30 feet tall (CFC D105.3)
- Fire Access Road inside turning radius shall be a minimum of 20 feet; outside radius shall be a minimum of 40 feet, and shall be approved by the Fire Department. Turning radius shall be identified on submitted site plans for Fire Department review and approval.
- All bridges used on Fire Access Roads must meet or exceed the structural requirements as provided in the City Street Design and Construction Standards.
- A secondary means of emergency vehicle access is required when the road serves in excess of 50 residential units, or exceeds 500 feet in length or, when in the opinion of the Fire Chief, access by a single road might be impaired or unsafe due to vehicle congestion, condition of terrain, climatic conditions, very high fire hazard severity zones or other such local conditions (City Street Design Standards).
- All required Fire Lanes must be completed, maintained, unobstructed and marked appropriately (CVC 22500.1).
- Fire Department Knox key access shall be available for buildings containing hazardous materials, high piled storage and fire protection equipment.
- Illuminated exit signs shall be provided at construction of shell based upon the occupant load of the unfinished space.
- Store front doors shall be provided with lever action or panic hardware for all doors with the exception of the main entrance which may have key locking hardware.

## **FUEL MODIFICATION**

- Fuel Modification Plans where required, such as locations within Wildland-Urban Interface Fire Areas, must be completed and approved prior to issuance of Building Permit.

## **FIRE PROTECTION SYSTEMS – CFC 508.1**

- Fire hydrants, public and private shall be provided in accordance with Appendix C of the CFC:
  - The location of all hydrants installed shall be marked with a blue reflectorized marker on the roadway.

Standard  
Shell Building

- Access to all hydrants shall be maintained and remain clear and unobstructed (SRCC 18-44.508.5.5).
- Fire sprinklers shall be provided:
  - Signs shall be provided to clearly identify all Fire Department Connections (FDC's), Post Indicator Valves (PIV's), Detector Check Valves (DCV's), and all other control valves associated with any fire protection system. Each sign shall be of a durable all-weather design and be securely attached to the valve, and shall indicate the function of each valve. Additional signs may be required for valves that are located within a building or behind a visual obstruction (Information Bulletin 024, SRCC 18-44.508.5.4).
  - Protective bollards shall be installed where required to prevent damage caused by vehicles to hydrants, FDC's, PIV's, DCV's and other fire system assemblies. Protective bollards shall be installed as approved by the Fire Department and must allow for clear and unobstructed Fire Department access to the assembly.
  - All Fire Department Connection openings shall be provided with an approved protective cover (CFC 508.5.6).
  - All control valves shall be locked and maintained in the "open" or "on" position at all times. Approved "break away" locks shall be used, and a key to the locks used shall be provided for storage in the Fire Department lock box where such key box is installed (CFC 903.4.2).

**TRASH ENCLOSURES – CFC 304.3.3**

- Trash enclosures must not be stored within five feet of combustible walls, openings or roof eave lines. Trash enclosures may be allowed closer than five feet to combustible walls, openings or roof eaves if protected by an approved automatic fire sprinkler system; separate plan approval and permit required.

**OCCUPANCY CLASS – CFC 302.1**

- Occupancy Classification must be specified for building, all rooms and areas.

**OCCUPANT LOAD AND SIGNS – CFC 1004**

- Determine the occupant load based on the room use and the occupant load factor for each use (CFC 1004.1.1).
- Occupant load signs shall be provided for rooms where occupant load exceeds 50 in assembly use (CFC 1004.3).
- Public Assembly Permit may be required.

**FLAME SPREAD RATINGS – CFC 803, 805, 807, Table 803.3**

- Floor finish, interior wall and ceiling finish shall be in accordance with the CFC and the CBC.

**FIRE EXTINGUISHERS – CFC 906.2, 906.6, Title 19 CCR, Section 567(h).**

- Fire extinguishers shall be provided throughout the shell based on square footage.
- Light Hazard occupancies (offices) shall be provided with a minimum of one fire extinguisher having a minimum rating of 2A:10BC. Fire extinguisher(s) shall be located within 75 feet of travel, near exits or along exit paths, and for each 3,000 square feet.
- Moderate Hazard occupancies (retail, manufacturing, and warehouse) shall be provided with a minimum of one fire extinguisher having a minimum rating of 2A:10BC. Fire extinguisher(s) shall be located within 75 feet of travel near exits or along exit paths, and for each 1,500 square feet.

Standard  
Shell Building

- Each story shall be considered independently.

#### **EXTERIOR WALLS – CFC 704.2**

- Fire Resistive rating must be specified and comply when required due to distance to property line or building construction type.

#### **DOORS AND WINDOWS – Fire Resistive Rating – CFC 704.8**

- Fire Resistive rating must be specified and comply with requirements due to distance to property line or building construction type.

#### **COMBUSTIBLE PROJECTIONS – CFC 704.2**

- Fire Resistive rated construction must be provided where required.

#### **AREA SEPERATION LOCATIONS – CFC 508**

- Fire Resistive construction details must be provided.
- Penetrations and Openings (including doors and windows) must be protected as specified in CFC 704.8.

#### **OCCUPANCY SEPERATION LOCATIONS – CFC 508**

- Fire Resistive construction details must be provided.
- Penetrations and Openings (including doors and windows) must be protected as specified in CFC 704, 704.8, 718

#### **EXITING – CFC 1005, 1008, 1015, 1018, 1019**

- Number of required exits must be provided as specified in approved plans, and in compliance with the requirements of CFC 1005, Table 1005.1, 1019.1, Table 1019.1.
  - Minimum two exits required for:
    - Conference rooms – 750 square feet
    - Offices – 5,000 square feet
    - Retail – 3,000 square feet
    - Warehouses – 25,000 square feet
- Distance to exits must not exceed (CFC 1016.1, Table 1016.1, 18-44.1027.17, Table 1027.17.2):
  - 200 feet in buildings with no fire sprinklers.
  - 250 feet in buildings with approved fire sprinkler system.
  - 100 feet additional distance allowed in rated corridor.
- Exit route may not pass through hazardous rooms (SRCC 18-44.1018.1).
- Exit route must terminate at a public way and be unobstructed (SRCC 18-44.1018.1).
- Exit doors shall be located at least one-half of the diagonal measurement of the room (SRCC 18-44.1019.4, 1015.2, 1015.2.1, 1015.2.2).
- All door hardware must be “no knowledge” and single action lever or “panic” style (SRCC 18-44.1008.1.8, 1019.1.9).

Standard  
Shell Building

- Main entry door may have a “key locking” hardware if door is equipped with sign above door “DOOR SHALL REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED” (SRCC 18-44.1008.1.8.3.2.2).
  - Additional “dead bolts” or other locking devices allowed only if connected to the lever or “panic” hardware (single action required to open all locks) (SRCC 18-44.1008.1.8.5).
  - “Panic” hardware required where occupant load exceeds 50 in Group A, or other assembly area not classified as a Group A, Group E, Group I-2 or I-2.1, or any Group H occupancy (SRCC 18-44.1008.1.9).
  - Manual flush bolts are prohibited (SRCC 18-44.1008.1.8.4).
- All exit doors and exit pathways must be functional and unobstructed (SRCC 18-44.1002.1, 1003.6, 1008.1.8).
  - Building exit and evacuation plans must be provided where required by Title 19 CCR, Section 3.09.
  - Exit doors must swing in direction of travel when occupant load exceeds 50 or in hazardous areas (SRCC 18-44.1008.1.2).
  - Exit must be continuous to a public way (SRCC 18-44.1007.2).

**CORRIDORS - SRCC 18-44.1017**

- Dead end corridors may not exceed 20 feet (SRCC 18-44.1017.3).
- Corridors may not be interrupted by intervening rooms (SRCC 18-44.1017.5; exceptions allowed).
- Corridors are required to be fire rated as specified in SRCC 18-44.1017, Table 1017.1.
- Construction details of corridors must be as per approved plans (SRCC 18-44.1017).
- Openings in corridors shall be protected (SRCC 18-44.1017; exceptions allowed).
- Smoke dampers required for penetrations in fire rated corridors (SRCC 18-44.909.5.2.1, 703.1.2).
- Fire dampers required for penetrations in fire rated corridors (SRCC 18-44.703.1, 703.2)

**EXIT SIGNS – SRCC 18-44.1011**

- Required so that no point is farther than 100 feet from nearest visible sign (SRCC 18-44.1011.1).
- Must clearly indicate direction of exit travel (SRCC 18-44.1011.1).
- Must be visible from any direction of approach (SRCC 18-44.1011.1).
- Low level exit signs required in corridors of Group A, Group I, Group R-1 (SRCC 18-44.1011.6).
- Pathway marking at floor level required unless equipped with fire sprinkler system (SRCC 18-44.1011.7).

**EXIT SIGN ILLUMINATION – SRCC 18-44.1011**

- Exit sign illumination is required when two or more exits are required (SRCC 18-44.1011.2).
- Illuminated signs must have back-up power supply and remain illuminated when power supply is disconnected, or be self-luminous (SRCC 18-44.1011.5.3).
  - Illuminated Exit Signs required for:

- Assembly – occupant load 50
- Office – occupant load 30
- Retail – occupant load 50

#### **EMERGENCY PATHWAY LIGHTING – SRCC 18-44.1027**

- Required when occupant load exceeds 100 (SRCC 18-44.1027.5), or 50 in State regulated occupancies.
- Required in all public areas, including restrooms.
- Must be provided with back-up power supply and illuminate when power is disconnected (SRCC 18-44.1027.5.1).

#### **ROOFING SURFACE MATERIAL – SRCC 18-16.1505.1**

- Must be proper class for building and location.

#### **TJI / COMPOSITE WOOD JOISTS - NFPA 13-8.15.1.2.8, 13-8.15.1.2.13**

- Composite wood joists in sprinklered buildings; maximum 22" depth (NFPA 13-8.6.4.1.2(4)), or:
  - Provide 5/8" type "X" drywall on underside of joists, or
  - Provide sprinkler coverage between joists, or
  - Fill concealed open spaces between joists with non-combustible insulation, and
  - Spaces are firestopped into volumes not more than 160 square feet.
- Open joists require fire stopping of channels into 300 square foot areas (NFPA 13-8.6.4.1.2(5)).
- Closed joists require fire stopping of channels into 160 cubic foot areas (NFPA 13-8.15.1.2.6).

#### **DRAFT STOPS - SRCC 18-16.717**

- Floor-ceiling assemblies - SRCC 18-16.717.3
- Required in buildings with combustible construction as specified (see exceptions for fire sprinklers):
  - Group R-1 buildings (SRCC 18-16.717.3.2).
  - Group R-2 buildings with three or more dwelling units (SRCC 18-16.717.3.2).
  - Group R-3 with two dwelling units (SRCC 18-16.717.3.2).
  - Group R-4 buildings (SRCC 18-16.717.3.2).
  - All other Groups, so that the horizontal floor areas do not exceed 1,000 square feet – see exceptions (SRCC 18-16.717.3.3).
- Attics and concealed roof spaces - SRCC 18-16.717.4
- Required in attics, mansards, overhangs or other concealed roof spaces (see exceptions for fire sprinklers):
  - Group R-1 buildings (SRCC 18-16.717.4.2).
  - Group R-2 buildings with three or more dwelling units (SRCC 18-16.717.4.2).
  - All other Groups, so that the horizontal floor areas do not exceed 1,000 square feet – see exceptions (SRCC 18-16.717.4.3).

#### **SKYLIGHTS - SRCC 18-16.711.4**

- Not installed within distance to property lines or area separation walls required to be protected.

**SMOKE VENTS - SRCC 18-44.910**

- Must be operable from exterior (SRCC 18-44.910.4.4)
- Proper size 4' x 4" (SRCC 18-44.910.3.3)
- Required number within each area formed by draft curtains (SRCC 18-44.910.3.4)
- 20 feet from property line (SRCC 18-44.910.3.4)
- Required in F1 and S1 greater than 50,000 square feet (SRCC 18-44.910.2.1)

**DRAFT CURTAINS - SRCC 18-44.910.3**

- Proper construction, depth, location and number (SRCC 18-44.910.3.5.2, Table 910.3)
- Penetrations not allowed unless sealed (SRCC 18-44.910.3.5.1).
- Required for certain high-piled stock areas (SRCC 18-44.2306.2).

**ROOF ACCESS - SRCC 18-44.504.3, 1009.11**

- Proper size and location (SRCC 18-44.1009.11.1)
- Access door(s) must have approved signage (SRCC 18-44.510.1)

**FIRE AND SMOKE DAMPERS**

- Smoke dampers required for penetrations in fire rated corridors (SRCC 18-44.909.5.2.1, 703.1.2).
- Fire dampers required for penetrations in fire rated corridors (SRCC 18-44.703.1, 703.2)

**SMOKE DETECTION SHUT DOWN OF HVAC**

- Required for air handling units exceeding 2,000 cubic feet per minute (SRCC 18-36.609)

**MECHANICAL VENTILATION**

- For areas handling hazardous materials (SRCC 18-44.2703.8.4.2)
- Equal to 1 cubic foot per minute per square foot (SRCC 18-44.2704.3.1)

**ELECTRICAL**

- Main panel room identified on exterior (SRCC 18-44.510.1)
- Circuit breakers clearly labeled (SRCC 18-44.605.1)

**ELEVATORS**

- Must comply with fire department requirements for recall, override, and emergency signage (SRCC 18-44.607.1, 607.2)
- Provided with method for summoning emergency assistance from within elevator (SRCC 18-16.1116B.1.8)
- Must be minimum size to accommodate wheel chair (SRCC 18-16.1116B.1.8).

**FIRE SPRINKLERS - SRCC 18-44.903**

- **PROVIDED AS PER APPROVED PLANS - SRCC 18-44.901.2.1**
- **ACCEPTANCE INSPECTIONS COMPLETE - SRCC 18-44.901.5**
  - Weld
  - Overhead
  - Hydrostatic test(s)
  - Contractor's Material and Test Certificates for above and underground ground piping (NFPA 13)
  - Final Inspection
- **SPARE FIRE SPRINKLERS AND WRENCH - FIRE SPRINKLERS - NFPA 13-2.2.7.1 - A representative sample of all fire sprinkler types and ratings in a system available as spares in case emergency replacement is needed; an appropriate sprinkler wrench is also required to be provided. These items must be stored in a metal "spare head" box and located near the fire sprinkler riser, or fire alarm panel.**
- **FIRE SPRINKLER RISER ACCESS SIGN – SRCC 18-44.510.1**
  - On exterior and interior doors as necessary to quickly locate riser.
- **RISER SIGNAGE – SRCC 18-44.510.1**
  - All valves identified as to function.
- **RISER CLEARANCE – NFPA 13 9-3.4.1, 9-3.4.2, NFPA 24**
  - 2" clearance around base of 4" or larger riser (NFPA 13 9-3.4.2);
  - Flexible fill material required, such as mastic (NFPA 13 9-3.4.8).
- **HYDRAULIC CALCULATION DESIGN INFORMATION SIGN / DATA PLATE - NFPA 13 16.5.1**
  - Calculation plate on each riser; must be stamped or engraved metal sign.
  - Pressure available meets or exceeds pressure required on calculation plate.
- **2 INCH DRAIN TEST - SRCC 18-44.903.3.1.1, NFPA 13**
  - Witness and record 2 inch drain opening (risers 4" or larger) (NFPA 13 8.15.2.4.2)
  - Residual pressure should drop and then return.
  - If pressure does not return, check all valves.
- **INSPECTOR TEST ALARM - SRCC 18-44.903.4.2, NFPA 13 16.2.3.1**
  - Witness and record opening of inspector's test valve.
  - Inspector's test valve must have ½" orifice at opening.
  - Exterior alarm must activate within 5 minutes of water flow.
  - Inspector's test valve must be locked "closed" at end of test; key provided for fire department lock box (NFPA 13 8.15.1.1.2.1, A.8.15.1.1.2).
  - Valve must be equipped with permanent, all weather sign (NFPA 13 6.7.4.1, 13 6.7.4.2).
- **FIRE ALARM BELL SIGN – NFPA 13 8-16.1, A.8.16.1**
  - Sign required on or adjacent to exterior water flow bell
    - "FIRE ALARM – CALL 9-1-1"



**FIRE ALARM - SRCC 18-44.907, NFPA 70 & 72**

- Installed as required by approved plans (SRCC 18-44.907.1.1)
- Acceptance inspection – functional test (SRCC 18-44.907.17, 18-44.907.20, NFPA 72 Chapter 10)
  - Annual service date displayed on panel when completed (SRCC 18-44.907.20, NFPA 72 Chapter 10)
- Remote annunciator
  - Location at main entrance of facility (SRCC 18-44.907.9.2)
  - Provide instructions for “silence” and “reset” functions at annunciator (SRCC 18-44.907.19)
  - Provide necessary codes for functions in fire department lock box (SRCC 18-44.506.1, 907.19)
  - 8 ½” x 11” framed floor plan is located at annunciator, showing (SRCC 18-44.907.19)
    - Alarm zones
    - Device locations
- Acceptance test (SRCC 18-44.907.17, 907.20, NFPA 72 Chapter 10)
- A/C power disconnect (trouble signal)
  - Remainder of test conducted using battery power
- Witness and record activation valve tamper circuits (supervisory signal)
  - Detector check
  - Post Indicator Valve (PIV)
  - Riser control
- Central Station receives and transmits alarm to dispatch; verify premise address
- Dedicated phone lines
  - direct connection to public telephone network system; may not be connected through on-site private telephone network switch (“Centrex”) system
  - send trouble signal to central station when disconnected
- Battery power disconnect (trouble signal)
- Batteries must be dated
- Pull station(s) located in occupied area and function properly
- Horn/strobe device located in occupied area and function properly
- Address / zone – alarm must report proper activation area or zone
- Dedicated A/C power disconnect locked “on”; key provided for fire department lock box (Fire Prevention Bureau Standard 040)

**SPRINKLER MONITORING – SRCC 18-44.903.4**

- Required when system installed in other than Group R-3 occupancies.

**FIRE PUMPS - SRCC 18-44.913.5.1, NFPA 20**

- **VERIFY ACCEPTANCE TEST PERFORMED**
  - All items completed
- **CONTROL VALVES - SRCC 18-44.913.2, 913.4**
  - Locked open
  - Monitored by alarm system
  - Permanent sign attached showing function and normal position of all valves
- **POWER SUPPLY - SRCC 18-44.913.5.2, NFPA 110**
  - Locked "on" ; key provided for fire department lock box
- **FUEL TANK SUPPLY - NFPA 110**
  - Locked "open"; key provided for fire department lock box

**STANDPIPES - SRCC 18-44.905.1, 905.2, NFPA 14**

- Acceptance inspection completed (including flow test)
- Installed at approved locations.