



PLAN CHECK CORRECTION SHEET FOR NFPA 13 2016

This is intended to provide uniform application of the codes by the plan check staff and to help the public apply the codes correctly.

Section: Mechanical Plan Check

Plan Check/PCIS Application No.:

Date:

Job Address:

Applicant Name:

Address:

Phone:

City/State/Zip:

E-mail:

Plan Check Engineer:

Telephone:

E-mail:

firstname.lastname@lacity.org

Your feedback is important; please visit our website to complete a Customer Survey at www.ladbs.org/LADBSWeb/customer-survey.jsf.

If you have any questions or need clarification on any plan check matters, please contact a plan check supervisor or call our Customer Hotline at (213) 482-0056.

Your plans have been examined and the issuance of a permit is withheld for the reasons set forth. The approval of plans and specifications does not permit the violation of any section of the Code, or other local ordinance or state law.

INSTRUCTIONS:

- Corrections with circled item numbers apply to this plan check.
- Additional corrections are at the end of the list.
- Incomplete or non-legible drawings or calculations will not be accepted.
- Incorporate all comments as marked on the checked set of plans and calculations and this correction sheet.
- For each correction indicate the sheet number and detail or note number on the plans where the corrections are made.
- **WHEN YOU HAVE COMPLIED WITH ALL CORRECTIONS, CALL OR EMAIL THE PLAN CHECK ENGINEER TO MAKE AN APPOINTMENT FOR VERIFICATION**
- **PLEASE BRING THE MARKED UP PLANS AND THE CORRECTIONS SHEET TO THE VERIFICATION APPOINTMENT**

SEE MARKED UP PLANS FOR CLARIFICATIONS OF CORRECTIONS.

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request will provide reasonable accommodation to ensure equal access to its programs, services and activities.

GENERAL REQUIREMENTS

1. Plans shall bear the registration or license number and signature of an architect, contractor, or engineer, registered by the State of California in the appropriate discipline. (State of California Business and Professional Code Div. 3, Chap. 7, Art. 3, Sec. 6735.4; LAPC 101.5.2, LAPC 101.5.6)
2. Indicate the job address on each page of the plan. (NFPA 13 Sec. 23.1.3(2))
3. Provide an approved modification letter to allow plans at a scale smaller than 1/8 inch per foot. (LAPC 101.5.4)
4. Indicate on the plans the scope of the work to be done. (NFPA 13 Sec. 23.1.3; LAPC 103.2.2)
5. Indicate the intended use and type of hazard on the plans. (NFPA 13 Sec. 23.1.3(7); LAPC 103.2.2)
6. Provide site piping plans. (NFPA 13 Sec. 23.1.3(10), 23.1.3(28))
7. Provide lot subdivision. No fire protection system shall be located on any other lot than the lot which is the site of the building served by that system. (LAPC 2005.0)
8. State piping materials. (NFPA 13 Sec. 6.1.1.3.1; 6.3; 10.1; 23.1.3(18))
9. The minimum meter size shall be based on the design flow. (LADWP requirement)
10. Install a listed double check backflow device at the meter. (LADWP Rule 16D Sec. 7.2)
11. The double check backflow device shall have the same nominal size as the meter. (LADWP Rule 16D Sec 8.6)
12. Provide product literature for the double check backflow device showing the listing and the pressure losses in function of the flow. (NFPA 13 Sec. 23.1.3(41); LAPC 103.2.2).
13. Provide a complete riser diagram. The riser diagram shall show pipe sizes, Fire Department connection, meter, eventual reduced pressure principle backflow device, check valves, control valves, pressure regulators, fire departments outlets, drain lines, inspector test, and flow switches, pressure regulators, back flow prevention devices, and water meter. (NFPA 13 Sec. 23.1.3(4), 23.1.3(23), 23.1.3(27), 23.1.3(41), 23.1.3(44); LAPC 101.5.1)
14. Provide a copy of the hydraulic design information sign on the plans. The sign shall include the following information:
 - a. Location of the design area or areas;
 - b. Discharge densities over the design area or areas;
 - c. Required flow and pressure of the system at the base of the riser;
 - d. Presence of high piled storage;
 - e. Maximum height of storage planned;
 - f. Aisle width planned;
 - g. Required flow and pressure of the system at the water supply source;
 - h. Required flow and pressure of the system at the discharge side of the fire pump where a fire pump is installed;
 - i. Type or types and number of sprinklers or nozzles installed including the orifice size, temperature rating, orientation, K-Factor, Sprinkler Identification Number (SIN) for sprinkler heads when applicable and response type;
 - j. The minimum discharge flow rate and pressure required from the hydraulically most demanding sprinkler;
 - k. The required pressure settings for pressure reducing valves;
 - l. For deluge sprinkler systems, the required flow and pressure at the hydraulically most demanding sprinkler or nozzle;
 - m. The protection area per sprinkler based on the hydraulic calculations;
 - n. The edition of NFPA 13 to which the system was designed and installed.

(NFPA 13 Sec. 25.5.2; LABC Ch 35 (NFPA 13 Sec. 25.5.2))

FIRE DEPARTMENT CONNECTION (FDC)

15. Provide a two way fire department connection. (NFPA 13 Sec. 6.7.1; NFPA 13 Sec. 8.17.2.1)
16. The Fire Department connection shall be on the address side of the building. (LABC 912.2)
17. Have the location of the Fire Department connection approved by the Fire Department. (LABC 912.2.1)
18. The Fire Department connection shall be a minimum of 4" diameter. (NFPA 13 Sec. 8.17.2.3)
19. The Fire Department connection shall be at least the same size as the riser. (NFPA 13 Sec. 8.17.2.3 (3))
20. There shall be no shut off valve in the Fire Department connection piping. (NFPA 13 Sec. 8.17.2.4.2 (1); NFPA 13 Sec. 8.17.2.4.3; NFPA 13 Sec. 8.17.2.5.2)
21. A listed check valve shall be installed in each Fire Department connection. (NFPA 13 Sec. 8.17.2.5.1)

22. The Fire Department connection shall not be connected on the suction side of a fire pump. (NFPA 13 Sec. 8.17.2.4.8)

VALVES

23. Provide floor control valves at each floor. (NFPA 13 Sec. 8.2.4; LABC 903.3.9)
24. Floor control valves shall be located on the same floor that they serve. (LABC 903.3.9)
25. Floor control valves shall be located within a stairway or smoke proof enclosure. (LAPC 2010.4; NFPA 13 Sec. 8.2.4.5)
26. Floor control valves shall be installed at the point of connection to the riser. (LABC 903.4.3)
27. Install a check valve in the connection from the standpipe to the sprinkler system. (NFPA 13 Sec. 8.17.5.2.2(1); NFPA 14 Sec. 6.3.5.1)
28. Each combined sprinkler and standpipe riser shall be equipped with a riser control valve to permit isolating a riser without interrupting the supply to other risers from the same source of supply. (NFPA 13 Sec. 8.17.5.2.2(3))
29. Provide a _____ inch drain. (NFPA 13 Sec. 8.16.2.4.2)

SPRINKLERS

30. In ordinary hazard occupancies, the maximum protection area for each sprinkler shall not exceed 130 square feet. (NFPA 13 Table 8.6.2.2.1(b))
31. In light and ordinary hazard occupancies the maximum distance between sprinklers shall not exceed 15 feet. (NFPA 13 Table 8.6.2.2.1(a); NFPA 13 Table 8.6.2.2.1(b))
32. Sprinklers spaced less than 6 feet on center shall be separated by baffles. (NFPA 13 Sec. 8.6.3.4.2)
33. State on the plans ceiling construction type in order to determine the maximum allowable protection area per sprinkler. (NFPA 13 Sec. 8.6.2.2.1)
34. The sprinkler deflector shall be installed not more than 12 inches below the ceiling. (NFPA 13 Sec. 8.6.4.1.1.1)
35. Permanent heat collectors are not permitted (NFPA 13 Sec. 8.5.4.1.4)
36. Provide sprinklers under ducts wider than 4 feet. (NFPA 13 Sec. 8.6.5.3.3)
37. Provide sprinklers under every overhang wider than 4 feet made of combustible material. (NFPA 13 Sec.

8.15.7.1)

38. Provide sprinklers under any overhang wider than 2 feet and used for storage. (NFPA 13 Sec. 8.15.7.5)
39. Provide sprinklers above the ceiling (NFPA13 Sec. 8.15.1.1)
40. Sprinklers used in horizontal combustible concealed spaces less than 36 inches in height shall be listed for such use. (NFPA 13 Sec. 8.15.1.6)
41. Install sprinklers in the closets and pantries. (NFPA13 Sec. 8.1.1 (1); 8.1.1 (4); 8.15.8.2)
42. The building shall be provided with sprinklers in all areas. (NFPA 13 Sec. 8.1.1(1))
43. Provide an elevation with dimensions of the skylights and the location of the sprinklers heads. (NFPA 13 Sec. 8.5.7.1)
44. Note on the plans make, models, orifice size, and temperature ratings of every sprinkler head used. (NFPA 13 Sec. 23.1.3(12); 23.1.3(13))
45. Install quick response sprinklers in light hazard occupancies. (NFPA 13 Sec. 8.3.3.1 (1))
46. Install intermediate temperature rating sprinklers under a non-insulated roof. (NFPA 13 Sec. 8.3.2.5 (5))
47. Install intermediate temperature rating sprinklers under skylights. (NFPA 13 Sec. 8.3.2.5 (4))
48. Mixing sprinklers of different orifice size to balance the system is not permitted. (NFPA 13 Sec. 23.4.4.9.2)

HYDRAULIC CALCULATIONS

49. Provide an S.A.R. (Service Advisory Report) from the Los Angeles Department of Water and Power. (NFPA 13 Sec. 23.2.1; NFPA 13 Sec. 24.2.2.2)
50. Add 100 gpm for inside and outside hose allowance. (NFPA 13 Sec. 11.1.4.2; 11.1.6.2; 11.1.6.3 and Table 11.2.3.1.2)
51. Add 250 gpm for inside and outside hose allowance. (NFPA 13 Sec. 11.1.4.2; 11.1.6.2; 11.1.6.3 and Table 11.2.3.1.2)
52. Provide hydraulic calculations for the hydraulic most demanding area. (NFPA 13 Sec. 23.4.4.1)
53. The minimum number of the sprinklers in the design area shall never be less than seven. (LABC CH 35 (NFPA13 Sec. 11.2.3.2.3.2))
54. Area reduction is not allowed in ordinary hazard occupancies. (LABC CH 35 (NFPA13 Sec. 11.2.3.2.3.1))

55. Increase the design area by 30% without revising the density for sloped ceilings. (NFPA 13 Sec. 11.2.3.2.4)
56. Room design method can only be used when the room is enclosed with fire rated walls (NFPA 13 Sec. 11.2.3.3.3)
57. Show fire rated walls. (NFPA 13 Sec. 23.1.3(6))
58. Indicate on the plans if doors are self-closing. (NFPA 13 sec. 11.2.3.3.5)
59. If doors are not self-closing, add to the calculations the 2 nearest heads in the communicating space. (NFPA 13 Sec. 11.2.3.3.5(2))
60. Calculate the four most hydraulic remote residential heads. (NFPA 13 Sec. 11.3.1.1)
61. Residential sprinklers shall be calculated on a minimum flow rate of 0.1 gpm/ft². (NFPA 13 Sec. 11.3.1.3 (2))
62. Show node points consistent with the node points in the calculations. (NFPA 13 Sec. 23.1.3 (34))
63. Specify the square footage protected by each riser system. (NFPA 13 Sec. 8.2.1)
64. In light and ordinary hazard occupancies the maximum floor area protected by each riser system is 52,000 square feet. (NFPA 13 Sec. 8.2.1)
65. Provide listed pressure reducing valves where the pressure exceeds 175 psi. Pressure reducing valves shall be set at 165 psi. (NFPA 13 Sec. 8.16.1.2.1)
66. Provide product literature for the pressure reducing valve showing the pressure losses in function of the flow, the maximum allowable pressure, and the range at which it can be set. (NFPA 13 Sec. 23.1.3(40))
67. Provide evidence that the pressure reducing valve is listed. (NFPA 13 Sec. 8.16.1.2.1)
68. Provide evidence that the pipe can withstand the maximum pressure that the system will experience. (NFPA 13 Sec. 6.1.3)

WATER CURTAINS

69. Calculate 1500 square feet including a dimension parallel to the branch lines at least 1.2 times the square root of the area of sprinkler operation (when the calculated area is 1500 sq. ft.). (NFPA 13 sec. 11.3.3.2; NFPA 13 sec. 23.4.4.2.1)
70. Calculate 900 square feet including 36 ft. of water curtain (when the calculated area is 900 sq. ft.). (NFPA 13 sec. 11.3.3.2; NFPA 13 sec. 23.4.4.2.1)
71. Calculate the four adjacent heads including the highest number of adjacent water curtain heads. (4

- heads total flowing). (NFPA 13 Sec. 11.3.1.1)
72. Sprinklers in a water curtain shall flow at least 3 gpm per lineal foot, with no sprinklers discharging less than 15 gpm. (NFPA 13 Sec. 11.3.3.1)
73. Water curtain sprinklers shall be installed 6 feet apart. (LAPC 2010.3; NFPA 13 Sec. 8.15.4.5)
74. Water curtain sprinklers shall be installed 6 to 12 inches from the draft stop. (LAPC 2010.3; NFPA 13 Sec. 8.15.4.5)
75. Install a draft stop at least 18 inch deep immediately close to the opening. (LAPC 2010.3; NFPA 13 Sec. 8.15.4.5)
76. The draft stop shall be made of non-combustible or limited combustible material that will stay in place during sprinklers operation. (NFPA 13 Sec. 8.15.4.2 (3))
77. Please note that glass is not suitable material for the draft stop. (NFPA 13 Sec. 8.15.4.2 (3))
78. Provide approved architectural plans showing the location of the water curtain (LAPC 103.2.2)

SPECIAL SITUATIONS

79. Sound stages shall be designed as extra hazard group 2. (LABC 903.2.14.2)
80. Since there is group L occupancy in the building the portion of the building not having L occupancy shall be designed at least as ordinary hazard group 1 with a design area not less than 3,000 ft². (LABC 903.2.16)
81. Provide sprinklers in the grease duct. (NFPA 13 Sec. 7.9.2.1)
82. Provide an elevation of the grease duct system. Show duct, fire rated enclosure, piping, and sprinklers. (NFPA 13 Sec. 23.1.3 (4))
83. Install a sprinkler head at the collar of the hood. (NFPA 13 Sec. 7.9.4)
84. Install sprinkler at the top of each vertical riser in the grease duct. (NFPA 13 Sec. 7.9.3.1)
85. Install sprinklers at 10 foot intervals in horizontal duct. (NFPA 13 Sec. 7.9.3.3)
86. Provide calculations for the sprinklers in the grease duct. All sprinklers need to flow with a minimum pressure of 7 psi. (NFPA 13 Sec. 11.2.3.4.3)
87. Calculate the sprinklers in the grease duct to include a maximum of 7 sprinklers. (NFPA 13 Sec. 11.2.3.4.2)
88. Install a control valve in the pipe supplying water to the sprinklers in the grease duct and kitchen hood.

(NFPA 13 Sec. 7.9.9)

89. Write on the plans the height of the compact file storage. (NFPA 13 Sec. 20.6.1)
90. Compact file storage units shall not be higher than 8 ft. (NFPA 13 Sec. 20.6.1)
91. The top of the compact store module shall be at least 18" below the sprinkler deflector. (NFPA 13 Sec. 20.6.2)
92. Install solid steel 24 gauge minimum longitudinal barriers every third carriage. (NFPA 13 Sec. 20.6.4)
93. Install solid steel 24 gauge minimum transverse barriers not more than 4 feet apart. (NFPA 13 Sec. 20.6.5)
94. Install a sprinkler head at the top of the linen chute. (NFPA 13 Sec. 22.15.2.2.1.2)
95. Install a sprinkler head at the bottom of the linen chute. (NFPA 13 Sec. 22.15.2.2.1.4)
96. Install a sprinkler head at alternate floors in the linen chute. (NFPA 13 Sec. 22.15.2.2.1.4)
97. Install a sprinkler head at the top of the trash chute. (NFPA 13 Sec. 22.15.2.2.1.2)
98. Install a sprinkler head at the bottom of the trash chute. (NFPA 13 Sec. 22.15.2.2.1.4)
99. Install a sprinkler head at alternate floors in the trash chute. (NFPA 13 Sec. 22.15.2.2.1.4)
100. Branch lines serving an elevator hoistway shall only supply sprinklers on one floor level. (Title 8 Sec. 3012(b) exception 4.b.)
101. Provide shut-off valves for sprinklers serving elevator hoistways, machine room, or machinery spaces. (Title 8 Sec. 3012(b) exception 4.c.)
102. In order not to install a sprinkler in the pit of the hoistway, state on the plans that there are no polyurethane-coated steel belts. (NFPA 13 Sec. 8.15.5.7.1)
103. Indicate on the plans that the hoistway for the passenger elevator is noncombustible or limited combustibles and the car enclosure materials meet the requirements of ASME 17.1, otherwise provide a sprinkler head at the top of the hoistway. (NFPA 13 Sec. 8.15.5.6)
104. Install sprinklers at the top of the stair shaft and at the bottom landing (Non-combustible stair shafts). (NFPA 13 Sec. 8.15.3.2.1)
105. Install sprinklers throughout the staircase (combustible construction). (NFPA 13 Sec. 8.15.3.1)

HIGH PILED STORAGE

106. Indicate on the plans the height of the ceiling. (NFPA 13 Sec. 12.1.3.4)
107. Indicate on the plans the height of storage. (LAPC 103.2.2; NFPA 13 Sec.12.1.3)
108. Indicate the ceiling slope on the plans. (NFPA 13 Sec. 12.1.2, 23.1.3 (45))
109. Indicate on the plans the width of the aisles the type of racks. (LAPC 103.2.2)
110. Indicate on the plans the class of commodity. (LAPC 103.2.2)
111. Indicate on the plans all the tables and figures used to determine the water the water demand. (LAPC 103.2.2)
112. Install standard response sprinklers with nominal K factor of 8 or larger for water densities greater than 0.2 gpm/ft² up to 0.34 gpm/ft². (NFPA 13 Sec. 12.6.2)
113. Install standard response sprinklers with nominal K factor of 11.2 or larger for water densities greater than 0.34 gpm/ft². (NFPA 13 Sec. 12.6.3)
114. Hydraulic calculations shall be performed by adding four in-rack sprinklers to the ceiling sprinkler demand, balanced to the greater pressure at the point of connection. NFPA Sec. 13.3.3)
115. Add the hose allowance to the water main. (NFPA 13 Sec. 23.4.6)

SWAY BRACES

116. Show location of lateral braces on the plans. (NFPA 13 Sec. 23.1.3 (22))
117. Show location of longitudinal sway braces on the plans. (NFPA 13 Sec. 23.1.3 (22))
118. Install lateral sway braces at not more than 40 feet intervals in all feed and cross mains regardless of their sizes. (NFPA 13 Sec. 9.3.5.5.1; 9.3.5.5.2.2)
119. Install longitudinal sway braces at not more than 80 feet intervals in all feed and cross mains regardless of their sizes. (NFPA 13 Sec. 9.3.5.6.1)
120. Install a four-way brace at the top of every riser. (NFPA 13 Sec. 9.3.5.8.1)
121. Provide calculations for the lateral sway braces. (NFPA 13 Sec. 23.1.3 (39))
122. Provide calculations for the longitudinal sway braces. (NFPA 13 sec. 23.1.3 (39))
123. Show the sway bracing detail as part of the calculations. (NFPA 13 sec. 23.1.3 (39))

124. The minimum horizontal force for braces shall be based on the S_s from the United States Geological Survey (USGS) map: <http://earthquake.usgs.gov/designmaps/us/application.php>. The design reference code is 2010 ASCE 7. (NFPA 13 Sec. 9.3.5.9.3.1)
125. The weight of the system being braced shall be taken as 1.15 times the weight of the water-filled piping. (NFPA 13 Sec. 9.3.5.9.2)

DRY SYSTEMS

126. State on the plans approximate capacity in gallons of each dry sprinklers system. (NFPA 13 Sec. 23.1.3 (17))
127. State on the plans number of dry sprinklers in each system. (NFPA 13 Sec. 23.1.3 (16))
128. Since the dry system is more than 500 gallons install a quick opening device. (NFPA 13 sec. 7.2.3.3; 7.2.3.4)
129. Since the dry system is more than 750 gallons provide calculations to show that the water delivery time complies with NFPA 13 Table 7.2.3.6.1. (NFPA 13 sec. 7.2.3.6.1)
130. Gridded dry pipe systems are not allowed. (NFPA 13 Sec. 7.2.3.10)
131. Install check valves to subdivide the system into sections having 275 sprinklers or less. (NFPA 13 Sec. 7.4.4.1)
132. If there are multiple fire areas, each check valve can supply a maximum of 600 sprinklers. (NFPA 13 Sec. 7.4.4.2)
133. System having more than 600 heads or more than 275 heads in a fire area shall be supplied by two 6" valve in parallel. (NFPA 13 Sec. 7.4.3.1)
134. Systems controlled by two valves in parallel shall

have check valves checked against each other. (NFPA 13 Sec. 7.4.3.2)

135. Cross-connect the valves with 1" pipe to permit simultaneous tripping of both dry pipe valves. (NFPA 13 Sec. 7.4.3.4)
136. Increase the design area of 30% without revising the density. (NFPA 13 Sec. 11.2.3.2.5)

PREACTION SYSTEMS

137. Increase the design area of 30% without revising the density. (NFPA 13 Sec. 11.2.3.2.5)
138. Indicate on the plans if this is a single, non-interlock, or double interlock system. Include the detection devices that are required to operate. (NFPA 13 Sec. 7.3.2.1)
139. Not more than 1000 sprinklers shall be controlled by one preaction valve. (NFPA 13 Sec. 7.3.2.2)
140. For double interlock preaction system with more than 500 gallons, provide calculations showing that the system is designed to deliver water within 60 seconds. (NFPA 13 Sec. 7.3.2.3.1.2)
141. Provide calculations that show that the system size is designed to deliver water to the system trip test connection or manifold outlets in not more than the maximum time of water delivery specified in Table 7.2.3.6.1, starting at the normal air pressure on the system, with the detection system activated and the inspection trip test connection or manifold opened simultaneously. (NFPA 13 Sec. 7.3.2.3.1.4)
142. Double interlock preaction systems shall not be gridded. (NFPA 13 Sec. 7.3.2.6)
143. Preaction systems protecting storage occupancies, excluding miscellaneous storage, shall not be gridded. (NFPA 13 sec. 7.3.2.6)