Sacramento Metropolitan Fire District
Community Risk Reduction Division

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Fire Chief

SACRAMENTO METROPOLITAN FIRE DISTRICT					
FIRE PREVENTION STANDARD					
STANDARD TITLE:	**Civil Engineering Notes for Commercial Projects**				
STANDARD NUMBER:	8	EFFECTIVE DATE:	05/01/07	REVISION DATE:	07/02/12

The following information shall be reproduced on all civil engineering (site) plans for commercial projects as "Sacramento Metropolitan Fire District Notes":

1. The required fire flow for protection of the proposed project is _____ gallons per minute (GPM), at 20 pounds per square inch (psi), for a duration of _____ hours. This flow is based on a structure of Type _____ construction of not more than _____ total square feet with a 50% reduction for the installation of a full coverage automatic fire sprinkler system. This required fire flow is in addition to any domestic water demands. A change in any of these conditions may increase or decrease the required fire flow.

2. Required fire hydrants capable of providing the required fire flow shall be installed, tested, flushed and approved prior to any construction or storage of any combustible materials.

3. Required private streets and fire apparatus access roads shall be installed to the "first lift" (Up to the last one inch of pavement), identified and approved prior to construction or storage of combustible materials. Private streets and fire apparatus access roads shall be designed and maintained to support the imposed load of the fire apparatus – 75,000 pounds.

4. The following methods of fire apparatus access road identification are taken from section 22500.1 of the California Vehicle Code and amended by Fire District policy. One of the three methods presented below must be present for all areas designated as a fire apparatus access road:

   A. Posting of a sign every 50' along and immediately adjacent to, and visible from, the designated fire access lane clearly stating in letters not less than one inch in height that the place is a fire lane and no parking is permitted.

   B. By outlining or painting the pavement red with approved pavement paint and, in contrasting color, marking the pavement every 25' with words "FIRE LANE – NO PARKING" which are clearly visible from a vehicle.

   C. By a red curb or red paint on the edge of the roadway upon which is clearly marked every 25' with the words "FIRE LANE – NO PARKING".

5. The installation of perimeter fencing, gates, or barriers, that obstructs vehicular or pedestrian ingress or egress to a project site, building, etc., shall require a separate plan submittal, review, and approval by the Fire District prior to installation.

6. Blue reflective hydrant markers shall be installed in accordance with the following:

   A. On unstriped roadways, blue markers shall be set in the center of the roadway.

   B. On undivided striped roadways, blue markers shall be set 6" to the hydrant side of the center stripe.

   C. On divided roadways, the blue marker shall be set 6" to the side of the median or lane striping, which is closest to the hydrant.

   D. In locations where hydrants are situated on corners, blue markers shall be installed on both approaches fronting the hydrant.

7. Underground piping shall be installed in accordance with NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances* and the approved plans prepared by a civil engineer or piping installation contractor. The underground fire service installation contractor shall submit for review and approval a schematic drawing showing the part for part installation arrangement of the underground piping and appurtenances and a parts list with listing information for all parts prior to installation. A trench cross sectional detail shall be included on the plans.

8. Plastic piping approved for underground installations shall be PVC, C900, Class 150 or greater, and be listed for such use.

9. All runs of non-metallic water pipe shall have a No. 10 gauge solid soft drawn copper locator wire taped on top of the pipe to facilitate locating the pipe at a later date. The wire shall be stubbed up inside each valve box. Continuity test shall be conducted on each splice at all locations.

10. Galvanized pipe is not approved for underground supply piping.

11. Non-metallic pipe shall not be used within five feet of a building.

12. Above grade valves for controlling the water supply for on-site fire hydrants and automatic fire sprinkler systems shall be electrically supervised.

13. All piping shall be laid in a six inch bed of sand or natural gravel not over one inch in diameter and have a twelve inch fill of sand or natural gravel not over one inch in diameter.

14. A strand of 3" wide non-detectable blue tape marked "Water" shall be placed 12 inches above all piping.

15. All sections of ductile iron pipe or ductile iron fittings shall be encased in either 8-mil linear low density (LLD) or 4-mil high-density, cross-laminated (HDCL) polyethylene sheets or tubes in accordance with American Water Works Association Standard C105/A21.5-05, *Polyethylene Encasement for Ductile-Iron Pipe Systems.* Any fasteners shall be made of low-alloy steel.

16. Concrete thrust blocks or other approved retaining, shall be installed at all locations where piping changes direction.

17. A 200-PSI hydrostatic pressure test shall be performed on all installed piping and appurtenances for a period of two hours. The piping shall be center-loaded during pressure testing with all joints, fittings and appurtenances uncovered. Failure to comply with this section will result in a test failure and the uncovering of the piping for a visual inspection and retesting.

18. A fire sprinkler underground supply piping flush, using a full pipe diameter discharge, shall be conducted and witnessed by the Fire District prior to connection to the above ground fire sprinkler system. The fire department connection piping shall also be flushed if connected to the fire sprinkler supply piping below grade. Piping shall be flushed until all foreign objects have been discharged and the water is clear.

19. A fire hydrant flush, using the 4-½ inch "steamer" outlet, shall be conducted at all hydrants and witnessed by the Fire District. Piping shall be flushed until all foreign objects have been discharged and the water is clear.

Ray Iverson, AC/Fire Marshal