Livermore-Pleasanton Fire Department

Phone: 925-454-2361 | Fax: 925-454-2367

MODEL ROCKET GUIDELINES

This document provides the permitting requirements for model rocket launching within the cities of Livermore and Pleasanton. (Reference: CCR Title 19, Article 17. Model Rockets, Section 1020 et al). Contact Livermore-Pleasanton Fire Department for requirements applicable to other types of rockets. For Federal Aviation Agency (FAA) compliance go the National Association of Rocketry.

DEFINITIONS

Model Rocket: A rocket that (1) weighs no more than 1500 g (53 oz) with motors installed; and (2) is propelled by one or more model rocket motors having an installed total impulse of no more than 320 N-sec (71.9 lb.-sec); and (3) contains no more than a total of 125 (4.4 oz) of propellant weight (NFPA 3.3.7.2)

Model Rocket Motor: A rocket motor that has a total impulse of no greater than 160 N-sec (36 lb-sec), an average thrust of no greater than 80 N (18 lbf), and a propellant weight of no greater than 62.5 g (2.2 oz), and that otherwise meets the other requirements set forth in NFPA 1125, Code for the Manufacture of Model Rocket and High Power Rocket Motors (NFPA 3.3.5.2.2).

PERMIT (CFC §105.5):

- A FIRE/SPECIAL ACTIVITY PERMIT APPLICATION is required for the launching of model rockets. The permit fee is charged on an hourly basis in accordance with the city's master fee schedule. The permit fee is waived for not-for-profit organizations hosting group educational events.

- The permit application must be accompanied by written permission of the property owner for the launching model rockets, including city owned property.

SUPPLEMENTAL DOCUMENTS REQUIRED

SITE PLAN REQUIREMENTS

A detailed site plan shall detail all aspects of the event including but not limited to:

- Location of Parking Areas
- Rocket Storage
- Launch Site location on a property includes measured distances
- Location of fire access roadways and fire lanes
- Property lines
- Adjacent building(s) if applicable
- Occupant Safety Area

SAFETY PLAN outlining methods to comply with Safety and Operations of launch event

PERMIT CONDITIONS

SUPERVISION AND AGE RESTRICTIONS

The permittee shall be responsible for the safety of all other spectators and other people connected with launching of model rockets.

No model rocket motors shall be sold, given, or delivered to any person under 18 years of age.

Exception

(1) Model rocket motors bearing the standardized coding 1/4A, 1/2A, A, B, C, and D may be sold, given, or delivered to any person 14 years of age or older.
(2) People who are 12 years of age or older and who are taking part in a model rocket education program may receive model rocket motors and launch approved model rockets motors when under the direct supervision and control of a person 18 years of age or older.
    a. Model rocket motors must be obtained only from the adult in charge of the launch.
    b. Approved model rocket motors for this exception shall bear the motor coding 1/4A, 1/2A, A, B, C or D.

LAUNCH SITE

The launch site shall meet the following conditions and be approved by Fire Department:

☐ Located outdoors in a clear area, free of tall trees, power lines, buildings, and dry brush or grass.

☐ Model rockets shall be launched from the center of the launch site.

☐ The launch site diameter shall be as per the following table and based on motor type.

LAUNCH SITE DIMENSIONS & SPECTATOR SAFETY DISTANCE (from the National Association of Rocketry Model Rocket Safety Code Table 1, Rev 2020**)**			
Installed Total Impulse (N-sec)	**Equivalent Motor Type**	**Minimum Launch Site Diameter (ft.) (NAR-MRC)**	**Minimum Distance from Spectators (NFPA 1122 §6.12)**
0.00--1.25	1/4A, 1/2A	50	>15 Feet
1.26--2.50	A	100	>15 Feet
2.51--5.00	B	200	>15 Feet
5.01--10.00	C	400	> 40 Feet
10.01--20.00	D	500	>50 Feet
20.01--40.00	E	1,000	>100 Feet
40.01--80.00	F	1,000	>100 Feet
80.01--160.00	2F (or 1G)	1,000	>100 Feet
160.01--320.00	4F (or 2G)	1,500	>150 Feet

SAFETY & OPERATIONS

- ☐ A model rocket's structural parts, including the body, nose cone, and fins, shall be made of paper, wood, or plastic and shall contain no metal parts. A model rocket motor casing that is metallic, reloadable, and meets the specifications of NFPA 1122 is permitted.
- ☐ A model rocket shall have a means for returning it to the ground (for example, a parachute) so it can be flown again.
- ☐ All recovery wadding used in a model rocket shall be flame resistant.
- ☐ Model rocket motors must be commercially produced and labeled California State Fire Marshal seal and a NAR or NFPA Certification Marking.
  - Individual engines shall bear the California State Fire Marshal seal and the registration number of the licensee.
- ☐ A model rocket shall use no more than 113 g (4 oz) of propellant, unless one of the following is met:
  - A model rocket that weighs exceeding 453 g (16 oz) but not more than 1500 g (53oz), including propellant, shall be permitted if the Federal Aviation Administration notice requirements are met, See FAA Notification Section
  - A model rocket that uses more than 113 g (4 oz) but less than or equal to 125 g (4.4 oz) of propellant, shall be permitted if the Federal Aviation Administration notice requirements are met, See FAA Notification Section.
- ☐ Model rockets shall be launched from a stable launch device that provides rigid guidance until it has reached a speed adequate to ensure a safe flight path.
- ☐ Model rockets shall not carry a payload that is designed to be flammable, explosive or harmful to people or property.
- ☐ Model rockets shall not be launched at targets, into clouds, or near airplanes.
- ☐ The launch rod shall be capped or disassembled when not in use and shall not be stored in an upright position.
- ☐ To prevent accidental eye injury, the launcher shall be placed so the end of the rod is above eye level, or the end shall be capped when approaching it.
- ☐ The launcher shall have blast deflector devices to prevent the motor exhaust from hitting the ground directly. Area adjacent to launch devices shall be cleared of dry grass or combustibles.
- ☐ The launching system shall be remotely controlled and electrically operated.
  - The launch system shall have a safety interlock in series with the launch switch, and
  - The launch switch shall return to the "off" position when released.
  - The system shall be equipped with a removable safety interlock in series with the launch switch.
- ☐ All people shall observe the launch site spectator at least:
  - 4.6 m (15 ft) from the model rocket during launch of a model rocket with an installed total impulse of 30 N-sec (6.7 lb.-sec) or less.
  - 9 m (30 ft) from the model rocket during launch of a model rocket motor with an installed total impulse of more than 30 N-sec (6.7 lb.-sec).

- ☐ All people in the launch area shall be made aware of the pending model rocket launch
  - An audible 5-second countdown to launch shall take place.
- ☐ If the rocket does not launch when the launch button is pressed, the launcher's safety interlock or the battery shall be disconnected, and no one shall approach the rocket until 60 seconds after the last launch attempt.
- ☐ Launches shall be discontinued when winds exceed 32 km/h (20 mph).
- ☐ Launch angles shall be within 30 degrees of vertical.
- ☐ Launches shall only occur during daylight hours.
- ☐ No attempt shall be made to retrieve a model rocket from a power line or other life-threatening area.
- ☐ Launches shall be terminated during Red Flag Warnings issued by LPFD.

FAA NOTIFICATON:

- ☐ Notice to Airmen (NOTAM) filing is required for launches above 400 ft AGL per FAA 14 CFR §101.25. Learn more at

Launch Safety Reference