

COLORADO SPRINGS FIRE DEPARTMENT, DIVISION OF THE FIRE MARSHAL

Model Rocket Launches

Requirements for model rocket launches during burn restrictions and burn bans.



Technical Services
5/1/2018



Safety Guidelines for Model Rockets

The Colorado Springs Fire Department (CSFD) allows model rocket launches in accordance with the 2015 International Fire Code (IFC) and amendments as adopted and provided with the precautions outlined on the **next page**.

Model Rockets may include but are not limited to:

- Estes or equivalent model rockets using approved model motor types **A through D**.
- A model rocket has structural parts made of paper, wood, and breakable plastic; it has a means for its return to the ground so it can be flown again; and its primary use is for purposes of education, recreation and sporting competition.

Permits

During Citywide Fire Restrictions, a **special permit** for group, club or organization model rocket launches is required. Model rocket launches are prohibited during Citywide Burn Bans. Applicants shall obtain a **no fee**, temporary-use special permit at the Division of the Fire Marshal (DFM), Fire Department Complex located at 375 Printers Parkway. Permit procedures and additional requirements during Fire Restrictions include:

1. The applicant shall submit a Non-Hazardous Materials Permit Application to the DFM. For model rocket launches, "OTHER OPERATIONAL PERMITS NOT LISTED" should be selected, and note that it is for a model rocket launch. A minimum of 48 hours notification and application process is required prior to issuance of permit. A copy of the permit application may be obtained at the DFM or on the CSFD website.
2. Application shall be in writing and hand delivered. Application shall include a site diagram and a written authorization from the property owner for launch activity.
3. Application will be reviewed and may be approved pending a CSFD Permit Inspection prior to launch. Application may be disapproved based upon site conditions and/or weather conditions.
4. The permit requires that a qualified Launch Control Officer (LCO) is on site during the launch. The LCO shall conduct a pre-launch safety inspection of all rockets and understand the provisions of the permit and Safety Guidelines and Precautions. The permit and the Safety Guidelines and Precautions on the **next** page shall be available on site during launch.
5. Model rockets shall be launched during daylight hours of **7:30 am to 10:00 am**. Launches shall occur in safe weather conditions with **wind speeds no greater than 15 miles per hour**. The LCO shall be responsible for evaluating weather conditions. The fire department shall have the authority to revoke or restrict a permit approval to conduct a model rocket launch. This may include but is not limited to site location, adverse weather, traffic, communications, security, or other safety issues.
6. Violation of permit may result in a cease and desist order, revocation of permit, fine up to and including \$500 and/or up to 90 days in jail.

If there are any questions, please contact the Division of the Fire Marshal at (719) 385-5978.

LAUNCH INFORMATION	
Applicant name	Applicant phone/cell
Address of launch	Specific location of launch
Date of launch	Time of launch
Responsible party name/Title	Responsible party cell

LAUNCH SAFETY PRECAUTIONS
Weather. Launches shall occur in safe weather conditions with wind speeds no greater than 15 miles per hour . The LCO shall be responsible for evaluating weather conditions.
Pre-Launch Rocket Inspection. The LCO shall inspect rockets; ensure that the launch lug and fins are tightly adhered and straight. Follow manufacturer's guidelines.
Materials. Use only lightweight, non-metal parts for the nose, body, and fins of the rocket.
Motors. Use only certified, commercially-made model rocket motors, and do not tamper with these motors or use them for any purposes except those recommended by the manufacturer.
Ignition System. Launch rockets with an electrical launch system and electrical motor igniters. The launch system will have a safety interlock in series with the launch switch, and will use a launch switch that returns to the "off" position when released.
Misfires. If rocket does not launch when the button of electrical launch system is pressed, remove the launcher's safety interlock or disconnect its battery, and wait 60 seconds after the last launch attempt before allowing anyone to approach the rocket.
Launch Safety and Launch Pad. Use a countdown before launch, and ensure that everyone is paying attention and is a safe distance of at least 15 feet away when launching rockets with D motors or smaller, and 30 feet when launching larger rockets. If uncertain about the safety or stability of an untested rocket, check the stability before flight. Do not fly the rocket if uncertain of safety or stability. Use manufacturer guidelines and pre-launch rocket inspection. <ul style="list-style-type: none"> • The launch pad shall be cleared of dry/brown grass, weeds or other easy to burn materials. It shall be a large paved area such as a school parking lot or a large irrigated lawn. • A cell phone and Class A fire extinguisher must be on site at all times in the event of an emergency.
Launcher. Launch rocket from a launch rod, tower, or rail that is pointed to within 30 degrees of the vertical to ensure that the rocket flies nearly straight up. Use a blast deflector to prevent the motor's exhaust from hitting the ground. To prevent accidental eye injury, place launchers so that the end of the launch rod is above eye level or cap the end of the rod when it is not in use.
Size. Model rocket will not weigh more than 1,500 grams (53 ounces) at liftoff and will not contain more than 125 grams (4.4 ounces) of propellant or 320 N-sec (71.9 pound-seconds) of total impulse.
Flight Safety. Do not launch rocket at targets, into clouds, or near airplanes, and do not put any flammable or explosive payload in a rocket.
Recovery Zone. That area where rocket is expected to land. See attached table and diagram.
Model Rocket Launch Area. Launch area includes an outdoor launch pad and recovery zone. The Launch area shall be an open area at least as large as shown in the attached table and diagram. Ensure that there is no dry grass within the launch area, and that the launch site does not present risk of grass or structure fires
Recovery System. Use a recovery system such as a streamer or parachute in the rocket so that it returns safely and undamaged and can be flown again, and use only flame-resistant or fireproof recovery system wadding in the rocket.
Recovery Safety. Do not attempt to recover a rocket from power lines, tall trees, or other dangerous places. All igniters, engines, and rockets shall be disposed of in containers of water. The area must be policed after each event to ensure all hot motors, motor casings, or wadding are picked up and not potential for fire exists.
Aviation Notification. Notify FAA or local aviation facilities that may be affected by launch altitude.

Source: National Fire Protection Association (NFPA), NFPA 1122 Code for Model Rocketry, 2018 edition.

Source: <http://www.estesrockets.com/>

NFPA 1122 Table 4.9 Minimum Launch Site Dimension

LAUNCH SITE DIMENSIONS

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Dimensions (ft.)
0.00--1.25	1/4A, 1/2A	50
1.26--2.50	A	100
2.51--5.00	B	200
5.01--10.00	C	400
10.01--20.00	D	500
20.01--40.00	E	1,000
40.01--80.00	F	1,000
80.01--160.00	2F (or 1G)	1,000
160.01--320.00	4F (or 2Gs)	1,500

Launch Site Diagram (No Wind)

