

## Modular Home High and Dry in Lyons

LYONS, CO – When the waters of the St. Vrain River overflowed their banks in September 2013, the rushing water ripped out huge trees, took out bridges, created new channels through parks, and rushed through some downtown neighborhoods, ravishing homes in Lyons.

Homes on Park Street were included in the devastation. Only one remained unscathed, and it was modular.

“Because I’ve lived in Lyons for so long, I am well aware of the river,” said Donald Mercier. “I knew that I needed to build up high, above the floodplain.”

Before placing his 2,650-square-foot modular home on his Park Street property, Mercier decided that the property (located approximately 120 feet from the St. Vrain River) had to be elevated to provide a defense against the river.

Mercier checked with the city’s building and zoning department to find out if a raised elevation was possible and obtained a building permit. He consulted a civil engineer who was knowledgeable of the elevation process and who had experience with this type of mitigation technique. The engineer informed Mercier of how high he had to elevate the land to be above the 5,325-foot base flood elevation in Lyons.

Approximately four feet of dirt was excavated and set to the side to be used to construct the elevation. A concrete footer creating extended foundation walls was constructed, and the modular home was placed on top of it. This placing also generated a crawl space beneath the home.

Crawl space foundations are commonly used to elevate the lowest floors of residential buildings located in special flood hazard areas above the base flood elevation.

To further provide a defense against the river, Mercier used London stones to construct retaining walls around the entire property. Below the first wall he placed a concrete footer with rebar. He then added a second stone wall about five feet below the first wall. The second wall helps bolster the wider base needed to support a nearly seven-foot elevation.

The value of Mercier’s mitigation project was tested when the city of Lyons was devastated by the September flood. With no electricity, sewer, water, or gas, residents fled to safety. A tour down Park Street provided views of waterborne debris, mud, silt, and homes that were inundated with floodwaters. Mercier’s home stood high and dry.

“When you decide that you want to live near the river, you need to pay attention to it,” said Mercier. “You have to be prepared. You have to build a defense if you want to protect your property.”

There are advantages to elevating your flood-prone home. Included among these are:

- Reducing the flood risk to the home or business and its contents;
- Eliminating the need to move vulnerable contents to areas above the water level during a flood;



- Reducing the physical, financial, and emotional strain that accompanies floods; and
- Decreasing flood insurance premiums by reducing the risk to a property.

While the initial cost to mitigate may be expensive, the return on investment is invaluable. Also, your project may be eligible for funding assistance.

The U.S. Small Business Administration (SBA) is responsible for providing affordable, timely, and accessible financial assistance to homeowners/renters, private/non-profit organizations, and businesses of all sizes located in a declared disaster area.

If your home or business is substantially damaged by a flood, you may be required to meet certain building requirements in your community to reduce future flood damage before you repair or rebuild. To help you cover the costs of meeting those requirements, the National Flood Insurance Program (NFIP) includes Increased Cost of Compliance (ICC) coverage for all new and renewed Standard Flood Insurance Policies.

There are four options you can take to comply with your community's floodplain management ordinance and help you reduce future flood damage. You may decide which of these options is best for you.

1. Elevation. This raises your home or business to or above the flood elevation level adopted by your community.
2. Relocation. This moves your home or business out of harm's way.
3. Demolition. This tears down and removes flood-damaged buildings.
4. Flood-proofing. This option is available primarily for non-residential buildings. It involves making a building watertight through a combination of adjustments or additions of features to the building that reduces the potential for flood damage.

The Federal Emergency Management Agency (FEMA) administers three grant programs to assist communities in mitigating the effects of natural hazards: the Flood Mitigation Assistance (FMA) Program, the Hazard Mitigation Grant Program (HMGP), and the Pre-Disaster Mitigation (PDM) grant program. State, Tribal, and local government agencies may apply through the States to receive funds for these programs. FEMA requires these applicants to meet a specific set of requirements when applying for the funds to ensure that proposed projects meet the program eligibility criteria to include federal environmental laws and regulations and cost-effectiveness requirements.

For additional information visit:

<http://www.fema.gov/building-science>

<http://www.fema.gov/grants>