

Here today, gone tomorrow?

by
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Geologist David Lopez says that it's "spooky" how deep one large crack in the Rimrocks is.

The large chunk of Rims, about 30-by-10-feet on the top surface, is moving away from the main cliff.

Although it's solid to stand on now, Lopez thinks the mass will eventually fall.

"This one is pretty much ready to go," he said.

The rock already has slumped a couple of inches lower than the main face.

The eastern edge of the rock has a sharp edge with no lichen growing along the interior walls and dirt remains piled up on one of the corners. They are all signs that movement has happened recently.

Fortunately there's no structure directly underneath it. The Montana State University-Billings Physical Education Building is far enough away that it wouldn't get hit, although the rock might slide to the edge of MSU-Billings baseball field.

Lopez is a research professor with the Billings office of the Montana Bureau of Mines and Geology.

His office at the corner of Poly Drive and North 27th Street

is far enough from the Rims to be safe from rolling rocks, but he's concerned that many residents don't take the ever-changing cliffs above Billings into account when building homes.

The Rims are Eagle sandstone created when sand was laid down about 85 million years ago near the shore of an ancient sea and compacted and cemented into rock, Lopez said.

About 1 million years ago, the Yellowstone River cut out the Rims as the waters migrated back and forth across the valley. That process continues today with the river now cutting into the South Hills.

On the Rims side of the valley, the force of nature remains active, too.

Erosion is at work on the sheer cliffs, causing cracks or "joints" to form.

Sizable rocks have fallen recently.

In 1994, a large rock fell near the intersection of Sixth Avenue North and Main Street.

In 2001, a rock the size of a garage fell west of Billings in an undeveloped area and tumbled 1,000 feet down the slope. Luckily, no houses or other structures were in its way.

Lopez hopes that no more houses are built directly under the Rims.

Homes a half-block or more away from the Rims are relatively safe from rock falls, he said.

Just how much of a risk there is for an individual house to get hit is hard to say.

"We can say with certainty that rocks are going to fall off the Rims," Lopez said.

The chances of one falling on one particular house are far less.



In 2003, Lopez and Marianne Sims published MBMG maps showing potential areas of rock falls and landslides in the Billings area.

The area directly under the Rims from Exposition Drive to a few blocks west of Shiloh has a high potential for both rock falls and landslides. The Rims past Shiloh weren't part of that project, but Lopez would like to get funding to take a look at the rest of the Rims all the way to Park City.

Falling rocks aren't the only hazard.

Rocks slides or "slope wash" off the Rims over time has created unstable soils.

If someone building a home on such ground doesn't compensate for unstable soils a foundation could move and crack.

The city requires geo-technical testing when someone builds on those slopes, said Candi Beaudry, acting director of the city's planning and community services department.

Results of those tests indicate what a builder must do to deal with unstable soils. A foundation, for example, may have to be dug deeper.

Because unstable soils are an actual risk, city codes address them.

Falling rocks, on the other hand, are a potential risk and can't be predicted so the city doesn't have a set-back requirement for building under the Rims, Beaudry said.

That doesn't mean people shouldn't take that into consideration when buying or building a home.

Beaudry lives a couple of blocks from the Rims, and many of her neighbors have sandstone boulders in their yards.

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