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How Much is Too Much? USU Engineer Develops Online Snow Load Tool

09/05/2018

News Release — LOGAN, UTAH, Sept. 5, 2018 — A Utah State University professor of civil engineering has developed an online tool that estimates snow load requirements for new construction of homes and buildings.

The free online tool, available at utahsnowload.usu.edu, uses historical precipitation data to estimate the 50-year maximum weight of ground snow accumulations for any location in Utah. Engineers use the information to calculate roof loading requirements. Just input a street address or latitude-longitude coordinates, and the software will calculate snow load in pounds per square feet or kilopascals.



USU engineering faculty Marc Maguire led the development of a free online tool that estimates snow load requirements for new homes and buildings.

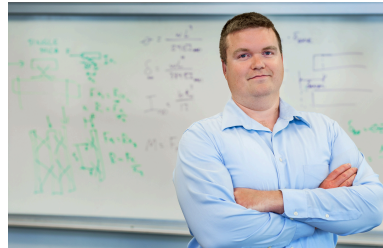
“Structural engineers and building officials now have a scientifically-backed, easy-to-use website where they can get snow load predictions for any building location,” said Marc Maguire, an assistant professor in the Department of Civil and Environmental Engineering.

Maguire, his co-investigator Yan Sun from the Department of Math and Statistics and the Structural Engineers Association of Utah spent two years creating the state-of-the-art spatial mapping technology. The project was also funded by industry sponsors. With the site up and running, the team is working to educate users and stakeholders about the new tool.

“In the Western U.S., snow loading is largely undefined by the American Society of Civil Engineers,” he said. “There are standard requirements for wind and earthquake loads but not snow loads.”

Maguire says Utah's snow load predictions, which are codified in state law, were last updated in 1992 and in some cases were difficult to use.

“Predictions gave vastly different answers at county boundaries and they only considered elevation, not latitude and longitude,” he said. “In addition, the predictions were never intended for structural use, even though they were higher-end estimates.”



Maguire is a leading expert in structural engineering. He specializes in buildings and bridges and is innovating new ways to create more efficient and safe structures. His work on the Snow Load site is drawing attention of engineers around the country.

“Accurately predicting the magnitude of snow load is critical for the safety of the structure, especially in Utah,” said Paul Barr, a professor and head of the Civil and Environmental Engineering Department at USU. “To produce a design tool, that is accepted in a design code, speaks volumes to the respect engineers have for Marc’s work. He has been contacted by the state of Washington to determine if he can do a similar project there.”

Maguire says all engineers and building officials will use the website to determine snow loads for all new structures in Utah.

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