

Snowsheds: Protection of Not Just Trains Over the Summit

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Theodore Judah, who laid out the transcontinental railroad's route, made a careful study of Sierra snow. He looked at the moss on the trees and the height at which wood cutters had removed branches for fire wood. Snow, he decided, was not a problem. Some snow would fall but it could quickly be pushed out of the way.

Donner Summit gets an average of 34 feet of snowfall each winter. Snow certainly is a problem and even before the railroad was completed, the Central Pacific was building snowsheds to cover the tracks and protect the trains. The huge bucker plows and armies of snow shovelers could not keep the line clear.

There is nothing more iconic in the Truckee/Donner Summit area than the snowsheds stretched across the face of Donner Peak above Donner Lake. Once there were forty miles of snowsheds protecting the transcontinental railroad. Without them the railroad could not have operated in winter. The snow fell and piled up over the sheds but the trains ran anyway.

It was a big decision to embark on building the snowsheds and it came at a huge cost: \$10,000 per mile. 65 million board feet of lumber and 900 tons of bolts and spikes were used in the initial construction and 2,500 men were dedicated to the task. The continual rebuilding of the wooden sheds due to fire and collapse raised those figures considerably. We can imagine that the sawmills in Truckee and on Donner Summit operated non-stop.

Snowsheds did not just cover the tracks. All along the route stations faced the track and were built attached to the snowsheds - as were workers' houses, businesses, and other buildings. Even the school on Donner Summit was attached to the sheds and children walked through the sheds to school every day.

Even with the snowsheds snowfall and avalanche could disrupt the railroad. In 1870 a large avalanche swept tracks and snowsheds into the canyon below Emigrant Gap. Snow shovelers and snowplows were hurried to the site but they could not keep up with the falling snow. After six days workers had cleared miles of track working from both ends of the blockage but were still seven miles apart. A snowbound train at Truckee was finally dug out and the passengers were told to get out and walk. Walk they did, through tunnels and past stations (stations used to be all along the line) – all the way to Emigrant Gap where they boarded a train to a warmer and sunnier part of California. More snowsheds were built the next summer.

In 1890 a blizzard shut the railroad for 15 days and even the snowplow train got stuck in the drifts. It couldn't go forwards and it couldn't go backwards. Snowflakes fell "the size of soda crackers," reported one passenger. Eventually 1800 men were brought in to shovel snow.

In January, 1952, over 225 passengers aboard the City of San Francisco Streamliner were engulfed by an avalanche and trapped just east and above what is now the turnoff to Highway 20 from I-80. The next day the train ran out of fuel. Thirty people were overcome by fumes. Passengers wrapped their feet in towels and curtains to keep warm. Plumbing froze. A thousand workers arrived to shovel the train clear. The Coast Guard dropped a doctor to the train. Dog sleds from Soda Springs brought in food. The passengers were stuck for three days until they could walk out to the highway and be taken away by volunteers in automobiles. The train was stuck for six days.

Snowsheds solved one problem for the railroad but created others. The Sacramento Daily Union said on April 22, 1867 “It is no exaggeration to say that the scenery... is one continuous glorious masterpiece of painting.” The quote about Donner Summit is true, but unfortunately railroad travelers could not appreciate it in the early days. “The average passenger journeying over the Sierras usually utters a deep sigh of relief -when his train emerges from the snowsheds.” (San Francisco Call October 15, 1905)

Passengers boarding the train, excited about the coming spectacular scenery were disappointed. The trip through the snowsheds was dark and smoky. At times it was miserable.

That was not the only or biggest problem with snowsheds. The big problem was fire. A second one was collapse. “...a more convenient arrangement for a long bonfire I never saw.” (Hawke’s Bay Herald January 28, 1870) The sheds were built of lumber which sat in the summer sun drying to kindling perfection. Locomotives sent sparks and cinders out with the smoke and sometimes, oftentimes, they settled on the wood. The timbers caught fire and the lengthy tunnels acted as chimneys. Conflagrations were frequent. The summer edition of the National Fire Protection Quarterly for 1916 said that the railroad lost an average 1770 feet of snowsheds, a third of a mile, annually to fire during the first 31 years of the railroad. When the railroad began using oil instead of coal or wood, the annual loss of snowsheds dropped to less than a third of that.

Fire was such a problem that it engendered a whole new industry dedicated to fire suppression. Trackwalkers walked the tracks looking for fire. Finding fire, they would telegraph for the fire train. There were three fire trains always kept with their steam up and ready to go. The trains would race to the fires to put them out before too much damage was done. Even so, there were large fires. One, in 1889, took out 8,000 feet of snowsheds, leaving the railroad vulnerable to the heavier than normal blizzards of 1890.

The railroad also built a lookout on Red Mountain. The men there could see miles of snowsheds. When they saw smoke they telephoned Cisco Grove, with one of the first telephones in California, which then telegraphed the fire train. The hike up Red Mountain is hard but the view is spectacular.

To prevent fires from spreading, spaces were needed in the long line of snowsheds and so telescoping sheds were built. In summer one section of shed was rolled into another, leaving a firebreak.

To notify the fire trains there were track walkers who kept an eye on the sheds and could ring the alarm when a fire was spotted.

Snowshed collapse was also a problem given the high snowfalls. Track walkers walked the track checking snowshed conditions and hundreds of snow shovelers were employed to keep the weight off the snowshed roofs.

Today the railroad, and residents, have better snow machines, the railroad has concrete snowsheds, there are no fire trains, track walkers, and just a few workers take the place of the thousand or more workers of decades ago.

Sidebars

"The whole railroad up here operates under wooden tunnels, snow sheds, and it was a rather weird experience to see turn-tables and a station and switches all in tunnels like the boat ride at Revere Beach. Great massive engines, 16 drivers, cab in front."

(Johnny Ellis Aug. 17, 1935, Norden, CA)

Soon we were in the snowshed, then in a tunnel, then a shed, next a tunnel and so on under a continual roof like a covered bridge for 22 miles and after an Egyptian darkness, for the tunnels are not lighted, through the cracks and windows in the sheds I could see deep canyons and mountain peaks all covered with snow. About the middle of the snow sheds we came to a railroad station and hotel. We stopped a few minutes and found everything frozen hard and cold as mid winter. This is the summit of the Sierra Nevada Mountains

(Traveler's Letter, San Francisco, California, William Smith, 1875.)

- To learn more on this topic, join us on June 29, 2019 for a historical talk on Snowsheds, fires and other related topics, 7:00-8:00 pm, Truckee Airport Conference Room, 10356 Truckee Airport Road, Truckee.
- For more information and a list of summer activities going on in Truckee to celebrate the sesquicentennial of the Transcontinental Railroad go to <https://goldspike.org> or the Facebook page: Donner Summit-Truckee Golden Spike Celebration.

About the author:

Bill Oudegeest has had a house on Donner Summit for more than forty years. He is a retired public school teacher and administrator and one of the founders of the Donner Summit Historical Society.

He writes and edits the Donner Summit Heirloom, has published two books on local history, written a variety of pamphlets and exhibits, leads hikes, etc.