



Some projects might need to perform asphalt installation in cold weather, maybe because of a cold snap that is being experienced, therefore, Cold Weather Asphalt installation might be needed.

Best advice is to hold off for better weather or next year, but sometimes that is not an option.

The following is a suggestive practice for your asphalt team, please discuss to have the very best results. Keep in mind that these suggestions will not ensure a positive result, but will assist the team in doing what they can to do the best job possible under the current conditions when we don't have any other option.

Proper compaction is key to prevent less dense asphalt

Suggested Practices for Ensuring Compaction in Cold Weather:

- Mix production temperatures can be increased within limits. Asphalt cement can be damaged if the mix is too hot. Generally request that plants load trucks up to 330°F maximum, depending on haul distance and other factors that affect mix temperature at the jobsite. Communicate with the plant operator.
- **Mix should be a minimum of 290°F at the time breakdown rolling begins.**
- Tarp loads when necessary. For short hauls, the crust that develops maintains internal heat and is readily re-mixed with hot asphalt upon unloading and transfer to and through the paver.
- Unload the third and fourth trucks first, then the first and second trucks. The first couple of truckloads are generally cooler from plant startup and/or the cooler cone of silos. Hotter mix will heat up the paver screed faster and avoid tearing the mat at the start of paving.
- Avoid using a pickup machine. Approximately 10° to 20°F heat is lost from the delivery temperature to the paver hopper. End dumping into the paver results in only about 5°F heat loss. Another 10° to 20°F is lost from the paver hopper to behind the screed. When pickup machines are used, avoid long windrows. Do not string out windrows until they are ready to be picked up.
- Keep the paver hopper near full when waiting 15 minutes or less for trucks. The mix will retain heat better in a large mass and keep the hopper hot. Communicate with the plant to ensure good truck spacing and minimal waiting periods.
- Remove cold chunks that form due to cold truck boxes – usually only a problem in the first round of trucks. If cold chunks are not removed or thoroughly broken up and remixed, these will not compact and will pop out of the mat prematurely.
- Keep handwork and raking to a minimum. Every time the mix is “fluffed,” it loses considerable heat.
- Longitudinal joints require particular attention in cold weather. Roll from the hot side as soon as possible.
- Rubber tire rollers are more effective in kneading the cool surface of the mix together to reduce permeability. Since cold weather paving is done in the typically wet winter months, it may be several months before the pavement is compacted and the surface kneaded tight from traffic. This, combined with moisture, leaves a mix that doesn't have a tight surface and is much more susceptible to raveling.

What affects compaction:

1. Thickness of lift
2. Base Temperature
(thicker material will hold temperature better)
3. Thinner wearing surfaces are more susceptible to temperature compaction issues.
4. Material Temperature
5. Ambient Temperature
6. Wind
7. Humidity
8. Solar Considerations
(The sunnier it is, the better the opportunity for the sun to heat the asphalt)

Prevent frozen subgrade—use blankets or ground thaw system.

Do not overly increase the asphalt temperature, this will damage the mix.

A crust might develop during shipping—this is insulating the remainder of the mix.

Keep handwork / raking to a minimum.

ALWAYS DISCUSS THE CONCERNS WITH THE OWNER AND LET THEM DECIDE ON THE INSTALLATION WITH AVAILABLE INFO

Cold Weather Discussion Points:

- **Can we reasonably expect to roll this mix before it cools too much?**
- **Do we need more rollers, or a wider roller to get coverage faster?**
- **Based on the job conditions of lift thickness and expected air and base temperatures, what will be our time available for compaction? Use charts, past experience or software programs to estimate a starting point. Always verify results in the field by measuring temperatures.**
- **What mix temperature should we ask the production facility to load trucks?**
- **Do we need to tarp trucks?**
- **How should we modify our rolling pattern based on the expected cooling rate? How much do we need to shorten the length of roller passes to cover the mat before it cools?**

Reference information taken from the following websites:

[Graniterock: Technical Reports](#) & Todd Mansell, Oct 2, 2014 [How to Successfully Achieve Cold Weather Asphalt Paving | For Construction Pros](#)