

# Fall Prep for Spring's Work

Sometimes Dry Weather in the Fall Changes to Wet Spring Disasters: During dry fall weather, excavation for building construction typically goes well. The topsoil has been removed from the floor area, the exposed soils are firm, the footings are poured and backfilled and things are all ready for doing some winter building construction.

In early March, the en-closed building will be heated to thaw out the floor area soils and pour the floor slab so the May 30<sup>th</sup> completion date can be met.



Come March, the building is heated and WOW, the floor area turns into a big mud hole!!! The top two feet of soils is nothing but mush. How could this happen... loaded trucks were driving on it last fall? Now, skid loaders are having a tough time getting around, let alone trucks that need to place the final 6" of sand and then the concrete floor. Worse yet, the

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building now keeps the wind and sunshine out and the moisture in, just the opposite of what is needed to dry things out. The May 30<sup>th</sup> completion date won't happen.

We have seen this scenario occur more than once. Frozen soils that were dry and stable in the fall become saturated and unstable when they thaw and there seems to be no easy way to dry them out after the building shell is up. Unfortunately, in one case, the only way to meet the building completion deadline was to replace much of the muddy soils in the floor area with a granular fill, all of which cost many thousands.

What type of Soils Develop this Problem: Soils with high "silt" contents seem to be most problematic relative to this situation. Even though "silty" type soils can be "hard as rock" when dry, they can easily turn into two feet of mud when wet.

How can this be prevented? Obviously, it takes a little foresight and planning, i.e. what can be done in the fall to prep the building site for high soil moisture conditions that will occur inside the building in early spring because of the thawing process. We think that at least two things should be considered.

#1) If winter is fast approaching, ask the soil engineer that is monitoring the building construction for an opinion..., "Will the floor area soils turn into 2 feet of mud when frozen over the winter and thawed in the spring?" Explain the situation of an early spring completion date along with the plan to enclose the building during winter.

The soils engineer might recommend placing several inches of clean "crushed" material (DOT base course) in the floor area this fall for the purpose of bridging over the soft silty soils next spring. Sometimes, a heavy duty geotextile fabric can also be placed to help reduce the thickness of "crushed" material that is needed. These are probably unanticipated costs, but they may be cheaper than drying or replacing 1-2 feet of muddy soils in an enclosed building during early spring.



#2) If at all possible, keep the floor area soils from freezing during the winter. A double layer of insulating blankets seems to be about the only viable option. Even if three layers are needed, it will likely be cheaper then replacing 1- 2 feet of mud in the spring. A combination of "crushed" material plus insulating blankets should also be considered. Straw bales have been used as a method of keeping the floor area soils from freezing, but they seem to attract every mouse in the county and also become a fire hazard.

One final thought for the civil engineers..., on one project the civil guys were way ahead of the game. Their civil plans specified placement of the "crushed" DOT base course in the floor area during the fall. They knew that winter construction was planned, and thought it was the best alternative to help assure the early spring completion date. ©

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