

# **COLD WEATHER IMPACTS ON TILING SYSTEMS**

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## **Summary Submission**

Cold weather, and its impact on tile related systems is something often overlooked and misunderstood. The characteristics of cold weather, such as low temperatures and high moisture through inclement weather, has potential to impacted detrimentally on both internal and external tile installation. Many times, the results are in failure and poor performance or longevity of some projects. Some problems which become apparent, such aesthetic defects (efflorescence and latex leeching), bond failure of tiles, and grout failure etc are commonly attributed to poor installation practices or incorrect selection of a fixing product for the application. The reasons such problems are often difficult to determine, is that it can be some time after installation that a failure becomes apparent. However, breakdowns in the tile system can be an effect of cold weather during the installation process and the result this impact is not considered.

Applications of tile installations affected detrimentally from colder weather patterns are more wide spread when than many would consider. Extremes such as snow, ice and sub-zero temperatures naturally trigger caution for most installations in particular most external work, would not be undertaken in these circumstances. However, much more moderate conditions in regions experiencing temperatures, of 5-15 degrees C (41-59 F) for example are not necessarily regarded with as much caution. Construction projects are often not heated or sealed from external weather and can be impacted by these types of temperatures at the time of tile installation process as a result, caution is required on internal works as well as external works. Low temperatures have a compounded detrimental effect externally when combined with moisture impact on work through rain showers and drying of setting products.

Some Cold weather issues that can be created are:

- Many tile adhesives have setting and curing times in their data sheets based on 20-24 degrees Celsius (68-75 F). As the temperature falls this setting time become slowed, even arrested completely. This in turn extends the time for setting /curing and consequent timing for trafficability and continuation of the construction process. To calculate the extra time required is extremely difficult as the retardation of the setting process as the temperature fluctuates is not linear.

- Surface temperatures are often considerably lower, and rise more slowly than the ambient temperature which can lead to misjudging the time required for setting.
- The trend Larger formats of Tile fixed to impervious surfaces such as waterproofing membranes makes it difficult to estimate the curing or setting which has occurred and errors likely
- Setting of some newer adhesive types, particularly the extended open time (E rated) are dramatically slowed or completely arrested (even permanently) if rain combined with low temperatures impact incomplete and un grouted work.
- Concrete slabs and tile screed beds may not be cured adequately, and in addition to this, inclement weather introducing moisture to the substrate which can dramatically affect the adequate curing of subsequent tile applications.

There are solutions and precautions to overcome many Cold Weather problems. However the potential lack of awareness of Cold Weather issues can lead to unnecessary failure, subsequent demolition and inconvenience and cost of rectification. This is not desirable as the replacement of installation leads to poor impact on an environmental level through waste of resources. The image of the tile industry is diminished as it is becomes regarded as unable to supply long lasting installation solutions, and the longevity of tile as product is brought into question.