The Practice of Bond Breaker Application in Concrete Tilt-Up Construction

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Urbanization and growth in population have led to an increase in impervious surfaces, which results in an As concrete tilt-up construction continues to grow both nationally and internationally with over 10,000 buildings constructed each year, accompanying this growth is the use and application of bond breakers. A bond breaker is a material that is used to prevent adhesion of newly placed concrete to the substrate, it is available in several forms from liquid, tape, and spray. An industry wide assumption exists that this product is poorly understood or misused. The following research studies the current practices of bond breaker application in concrete tilt-up construction in the United States through an anonymous electronic survey's response from industry professionals involved in tilt-up construction.

The survey asked the respondents 27 questions pertaining to the application of bond breakers for tilt-up construction. These questions included aspects of the application process like weather considerations, type of release agents commonly used, slab finishing/curing process, general knowledge and their typical practices of bond breakers. Although the survey as a whole could provide potential insight to many other concerns and issues involved with release agents, it was decided to focus this research will be on two of the survey's questions and their responses. The two questions include: Q12 - What specific weather issues affect your methods of slab preparation before applying a release agent?, and Q13 - What changes are taken into consideration in your typical practice when the climate issues are impacting the site?
The data from these two questions will be analyzed and used to evaluate the level of comprehension between industry professionals across the United States. Ultimately, this research aims to reveal the inconsistencies of typical bond breaker application by comparing the responses to manufacture's product data sheets and specified guidelines.

The results of this research are crucial to improving the production of the tilt-up panels and their lifting process. In addition, the proper application will result in less waste by reducing the requirement of re-applying bond breakers prior to the placement of concrete due to improper application. The Tilt-up Concrete Association has indicated in that approximately one million square feet of tilt-up panels are constructed a year. This is equivalent to approximately 217,000 gallons of bond breaker a year if 20 percent re-application is required.

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