



Precast concrete walls are used throughout the construction industry. These large flat sheets can be both structural, and also a component of architectural design. Many modern buildings employ pre-stressed concrete slabs for building fascias, and highways often employ these for noise abatement.

CASE HISTORY # 1 Pre-stressed Concrete Panels

Pre-stressed concrete walls are often produced on large steel molds, or on occasion, on FRP surfaces. Recently, a major US concrete manufacturer evaluated WB-CONC in the production of large pre-stressed concrete sheets. The mold in this case was a 600 foot long (182.9 meters) and 8 foot wide (2.44 meters) sheet of steel. Production involves stretching steel cables across the length of the slab; setting partitions to segment the large mold into the appropriate length slabs; and casting concrete. Before any of this occurs, mold release is applied to the huge steel mold with long handled mops or floor buffers.

The release agent that was being used was a commercial product comprised of vegetable oil in a mineral spirit base. While this has been effective in releasing the cast walls, the fact that this release leaves a slippery wet film on the mold surface has posed other problems. The first, and most significant of these, is that excess release can stain the concrete surface and often these stains do not appear until the slabs are exposed to UV after installation. The cost of remedying this on site can be enormous. Second, and also a result of the fact that the release sits wet on the mold surface, footprints from workers walking across the molds (as they inevitably must) results in foot patterns on the surface of the cast part. In this case, the surface must be re-worked (at minimum, pressure washed) to be useable. Marks can also appear from pre-stress cables that drag across the wet release surface. In addition to all this, spills, slop overs, or overspray (if sprayed) leave the work area with slippery wet surfaces on the floors surrounding the mold, thus creating work hazards.

Because of the problems detailed above, this manufacturer agreed to test MoldWiz®WB-CONC, a water-based release that is ideally suited to many rigorous and abrasive molding conditions. WB-CONC is a silicone free emulsion of fatty acids, polyolefins, and surfactants in a water vehicle. The product contains no hazardous materials making it friendly to both the user and the environment. MoldWiz® WB-CONC, is a 20% active release product that can be easily diluted as desired. WB-CONC dries to a non-transferring film that will not discolor or contaminate the concrete surfaces.

WB-CONC was diluted with water (3 parts water:1 part release) and applied with an agricultural canister sprayer and then wiped with fiber mop to assure good coverage (NOTE:airless paint sprayers are preferred). Two coats of release were applied. WB-CONC was also used on the coated, form liner boards that were used to segment the large mold. After curing, the concrete slab de-molded cleanly and easily with no evidence of surface contamination. In areas where workers had stepped, there were no visible footprints because WB-CONC was dry when they stepped on it. The concrete slabs were also clean and required no pressure washing. This meant less labor, a reduction in water usage and no contamination of soil and groundwater.

This major manufacturer immediately placed an order for WB-CONC and other plants throughout the USA are looking forward to evaluating this non-hydrocarbon, non-VOC mold release.

CASE HISTORY # 2 >>>>

CASE HISTORY # 2 >>>> Brick Veneer Concrete Walls

The production of concrete walls incorporating brick veneer in their surface has become a popular and economical method of construction, permitting quick erection of large structures with more aesthetic appearances. These walls are produced by using urethane elastomer form liners that are sectioned to hold each veneer brick in position. The face of each brick is thickly coated with wax, to prevent any concrete seepage from adhering to the face of the brick, and the urethane elastomer mold is coated with mold release as well. After all the brick veneers have been hand placed in the urethane mold, reinforcements or cables for pre-stressing are laid, and then the concrete is poured. When de-molded, the slab has the appearance of a hand laid brick wall, at a fraction of the time and cost.

Our customer had been applying an oil-based mold release on the urethane molds prior to placing the wax coated brick veneers. AXEL introduced a cleaner alternative with MoldWiz® WB-CONC, a 100% water-based mold release. In the initial trial, WB-CONC was diluted to with water (3 parts water: 1 part release) and applied with an airless paint sprayer.

Workers appreciated the fast evaporation of WB-CONC which left the mold surface quickly clean and dry and ready for the placement of the brick veneers. The finished brick veneer slab de-molded easily from the urethane mold.

Following de-molding, the face of the concrete wall is pressure washed to remove the wax coating from the face of the bricks. The observation in this production area was that pressure washing required lower heat for the water wash and less time to remove the wax. Because WB-CONC does not contain oil, there is no transfer of mold release to the finished wall, so cleaning is easier and no staining occurs. This customer was pleased to convert their production to WB-CONC.