

## INSTALLATION OF CERAMIC TILE OVER PLYWOOD SUBSTRATES WITH LATEX-PORTLAND CEMENT MORTAR

All wooden flooring, when placed over conventional floor joist or other systems, should be of a design and thickness so as to maintain a substrate deflection not to exceed 1/360th of span, including live and dead loads. The subfloor should be made of Exterior Grade or Exposure 1 Plywood exhibiting the American Plywood Association (APA) PS 1-95 stamp in accordance with applicable American National Standards Institute (ANSI) specifications.

The subfloor shall be 5/8" (16 mm) thick or one-inch nominal boards when on joists 16" (40.6 cm) o.c. The overlay surface to be bonded shall be 3/8" (9.5 mm) minimum exterior grade C-C plugged, non-fire treated, dry, clean, free of oil, grease, dirt, old adhesive residues, gypsum patches, curing compounds, sealers, waxes and paints. Secure the panels with screw-type nails and glue where possible. Locate nails or screws at 6" (15 cm) centers along panel edges and 8" centers each way throughout the panel.

Place 1/8" (3 mm) gaps between panels and 1/4" (6 mm) spacing where panels abut restraining surfaces. If subfloor panels, including tongue and groove, are tightly butted together, 1/8" (3 mm) saw cuts should be made between and all the way through the depth of the panels being careful not to cut into the floor joists. This will help to relieve movement as well as expansion and contraction stresses, which may affect the final tile or stone installation. Tongue and groove plywood sheets butted up, non-gapped plywood sheets, and/or filling the gaps between sheets with the dry-set latex-Portland cement mortar DOES NOT ALLOW FOR EXPANSION & CONTRACTION OF PLYWOOD SHEETS and will likely result in bond failure. Cementitious backer units are not totally rigid (somewhat flexible) and when placed over non-gaped plywood, buckling of plywood edges will be transmitted through the backer unit. This excessive movement will cause bond failure and cracked tiles.

All wooden surfaces must be for INTERIOR USE ONLY and protected from exposure to water. Problems can occur in plywood substrates when subjected to moisture. All wood floor structures shall be designed with proper ventilation on the underside and thorough protection from water vapor or moisture. Further, all joists, supporting structure and plywood surfaces shall be dry prior to installation of ceramic tile as any shrinkage occurring after the installation will result in bond failure.

The following products are not suitable for direct bonding of ceramic tile or stone: luan, waferboard, masonite, particle board, oriented strand board (OSB) or sheathing, pressure treated plywood, fire-treated plywood, interior grade plywood, hardwood flooring.

NOTE: Interior grade plywood is not considered a suitable substrate due to the water-sensitive nature of the glues used to bond laminate layers in this product. During applications using Portland cement-based setting materials, the moisture present in the mortar can cause these water-sensitive glues to lose bond causing the plywood to delaminate and in turn causing installation failure.

The installation of ceramic tile shall be performed in accordance to ANSI A108.12 and instructions found on product information sheets. Custom® products approved for use over plywood surfaces (ANSI A118.11):

- MegaFlex™ Ultimate Thin-Set Mortar
- FlexBond® Fortified Thin-Set Mortar
- VersaBond Flex® Fortified Thin-Set Mortar
- VersaBond® Fortified Thin-Set Mortar
- Porcelain Tile Fortified Thin-Set Mortar
- Marble & Granite Fortified Premium Mortar
- SpeedSet™ Fortified Thin-Set Mortar
- OptiCure™ Fortified Thin-Set Mortar
- Complete Contact™ Mortar
- Complete Contact™ RS Mortar
- RapidSetting Mortar System
- MasterBlend™ mixed with CustomFlex Additive or Acrylic Mortar Admix
- PremiumPlus® mixed with Acrylic Mortar Admix
- CustomBlend™ mixed with Acrylic Mortar Admix

### REFERENCE DOCUMENTS:

ANSI A108.12- AN-2 General Requirements for Subsurfaces:  
AN-2.5.3.2.1, AN-2.6.3.3, AN-2.6.4.4, AN-3.4 Wood Subfloors:  
AN-3.4.1.1, AN-3.4.1.2, AN-3.4.1.3, AN-3.4.1.4

TCA Floors, Interiors (Wood Subfloors) F141, F142, F144,  
NTCA Reference Manual (Installation of Tile Over Plywood)  
D-5, D-6, D-7.

