

CTU Online Anytime Module 1.4 – Suitable and Unsuitable Substrates

Key Takeaways

- Direct Bonding Tile Installation
 - Substrates suitable for direct bonding tile installation
 - Cement backer boards
 - Cement masonry units
 - Mortar beds
 - Cementitious self-leveling underlayments
 - Note that all suitable substrates still must meet ANSI standards.
- Interfaceable Substrates
 - Substrates suitable if properly prepared with specific materials and methods
 - Exposure 1 Plywood (Exterior Grade)
 - Cement and epoxy terrazzo
 - Gypsum wall board and underlayments
 - Oriented Strand Board (OSB)
 - Existing well-bonded ceramic tile
 - Existing well-bonded sheet vinyl flooring
 - Steel decking
- Bonding directly to plywood can be achieved under the following requirements
 - Must be rated Exposure 1 (Exterior Grade)
 - Only direct bond on floors
 - Subject to requirements and provisions per ANSI A108.01 Part 3.4
 - Sheets need to be gapped 1/8" with 1/4" at abutments
 - Floor framing and joist spacing must meet applicable building code provisions for floors and floor loading
 - Care must be taken as plywood expands and contracts more than concrete
 - Reference TCNA Handbook for additional details
 - Environmental exposure classification Res1 or Com1 can be specified
 - Interior, dry, residential and light commercial use only
- Terrazzo, cement / epoxy require specific materials and methods
 - Surface coatings must be removed and surface bonding primer or liquid crack isolation membrane must be installed

- If metal divider strips are present (many not conducive to tile design movement joint pattern), a sheet crack isolation membrane can be used in conjunction with a new architect- or engineer-designed joint pattern.
- Gypsum wallboard can be used according to ANSI A108.01.3.5
 - Board must be properly installed, flat and plumb with any loose particles removed.
 - Any oil based coatings must be encapsulated with bonding primer or liquid applied crack isolation membrane
- Gypsum-based underlayments
 - Suitable if installed by licensed applicator per the manufacturers installation instructions with sealer-primer
 - Sealer coat must be properly applied. If not present, a primer will need to be applied.
 - Due to excessive absorptive properties, a water droplet test should be done before and after primer applied to determine suitability
- OSB is not suitable for direct bonding due to probability of bond failure when under load
- Interface materials are also known as surface preparation materials. They include:
 - Cement patches
 - Cement backer board
 - Cementitious self-leveling underlayments
 - Liquid-applied and sheet membranes
- Cement backer boards, such as Wonderboard® Lite, are one of the most popular inter-faceable materials
 - These boards are good for interior and exterior use, are resistant to water and suitable for wet area applications. Wonderboard® Lite exceeds performance requirements of ANSI A118.9.
- Tiling over existing tile or vinyl flooring is possible, using the appropriate interfacing techniques.
 - TCNA TR418, TR420, TR711, TR712 and TR713 address tiling over existing tile or vinyl floors
 - Additionally, a ready to use, water based primer such as CUSTOM® MBP Multi-Surface Bonding Primer can be used as an interface material vs. mechanical preparation method
- Examples of unsuitable substrates that should never be covered include:
 - Fiberglass or other plastics, Hardwood or parquet wood floors, Luan plywood, chemically contaminated substrates, particle board, Masonite, dimensionally unstable metals, self-adhesive vinyl tile, sponge backed vinyl, carpet, wall coverings and oil based paint.

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