

TILE OVER HEATED FLOOR SYSTEMS

314F-2019-2021



Please refer to page 7.

DETAIL F – GYPSUM UNDERLAYMENT OVER CONCRETE SLAB

SUITABLE SUBSTRATES

- Interior concrete slabs, steel trowel or fine broom finish where no moisture intrusion occurs.
- Floor systems, including the framing system and subfloor panels, over which the tile will be installed shall be in conformance with the Canadian National Building Code 2015 and applicable local building codes taking into consideration anticipated live and dead loads.

MATERIALS

- TILE
- BOND COAT – Latex-Portland cement mortar (minimum acceptable standard ANSI A118.4 or ISO 13007 C2), modified epoxy emulsion mortar (minimum acceptable standard ANSI A118.3 or ISO 13007 R1).
- Gypsum concrete underlayment meeting performance requirements of ASTM C627. Minimum compressive strength of 15 MPa when tested by ASTM C472.
- Primer/sealer as per gypsum manufacturer recommendations.
- Crack isolation membrane – ANSI A118.12 or waterproofing membrane – ANSI A118.10.
- Uncoupling system to manufacturer's recommendations.
- Radiant heat system (by others).
- GROUT – Latex-Portland cement (minimum acceptable standard ANSI A118.6 or ISO 13007 CG1), epoxy (minimum acceptable standard ANSI A118.3 or ISO 13007 RG).

APPLICATION

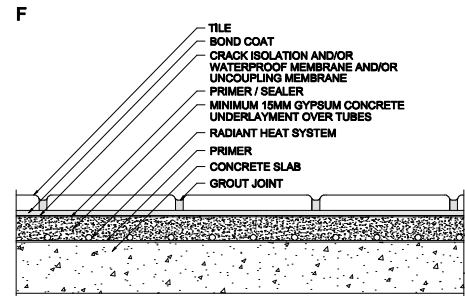
- Concrete slab to be well cured, dimensionally stable, free of contaminants such as oil, sealers, hardening or curing chemicals applied to the surface or incorporate in the mix. Following installation of radiant heat system, apply a minimum of 19 mm gypsum concrete underlayment over heating tubes, consult the manufacturer for specific recommendations when used with floor heating system. Finished tolerance of mortar bed not to exceed 6 mm in 3000 mm or 2 mm in 300 mm. For large format tile where any side is greater than 380 mm, surface variation should not exceed 3 mm in 3000 mm and 1.5 mm in 600 mm. For tile with any edge longer than 380 mm use sufficient bond coat to ensure minimum 95% contact, with the corners and edges fully supported. Gypsum underlayment must be fully dry /cured prior to installation of primer / sealer, crack isolation membrane, waterproofing membrane or uncoupling membrane, follow manufacturer's recommendations. Primer / sealer must be compatible with setting material. Use proper notched trowel to ensure adequate bond. With pressure, apply a coat of mortar by using the trowel's flat side to key the mortar into the substrate. Apply additional mortar, combing it in a single direction parallel to the tile's shortest dimension, with the trowel's notched side. Place the tiles firmly into the wet bond coat. Push the tiles back and forth in a direction perpendicular to trowel lines, to collapse the mortar ridges and to help achieve maximum coverage. Ensure proper contact between mortar, tile and substrate by periodically lifting a few tiles to check for acceptable coverage. Use sufficient bond coat to ensure minimum 80% on interior dry areas. Remove excess mortar from the joint areas so that at least 2/3 of the tile depth is available for grouting. Allow bond coat to cure. Force grout into the joints with a rubber grout float. Make sure all joints are well-compacted and free of voids and gaps. Remove excess grout from the tile surface and clean.

LIMITATIONS

- Manufacturers recommendations must be followed.
- For residential or light commercial use only.
- Not recommended for below – grade installations and areas subject to extreme moisture.
- Thickness of gypsum concrete should be 15 mm minimum.
- Prior to application of gypsum concrete underlayment consult with waterproofing membrane manufacturer.
- Consult with gypsum concrete manufacturer for proper curing time prior to application of tile and to the minimal time required before heat system is activated.
- Gypsum concrete underlayment installation only by a manufacturer qualified installer in accordance with the manufacturer's instructions and recommendations.

OTHER CONSIDERATIONS

- Gypsum concrete underlayment may also be used over wood floors providing that two layers of plywood are used. See detail 313F-2019-2021 drawing (A).
- If an uncoupling system is used, one single layer of plywood minimum thickness of 20 mm is acceptable providing the floor trusses or I – joist are spaced at no more than 480 mm o.c.
- Some gypsum concrete underlayment manufacturers recommend the use of plastic lath for application over wood substrate, follow manufacturers recommendations for best practice.
- Cross bridge floor joist but preferably solid blocking.
- Refer to Notes For The Professional.
- Uncoupling system to be placed over heating system. Follow manufacturers recommendations.
- Control joints as per detail 301MJ-2019-2021 and gypsum concrete manufacturer recommendations.
- Heating system - design, installation and inspection by others. Pre heating and testing of the heating system needs to be done prior to the installation of the tile. The tile installation cannot be done when floor heat is in use and may need a minimum of 7 days after tile installation before the radiant heating system can be turned on. Verify with manufacturer.



Continued