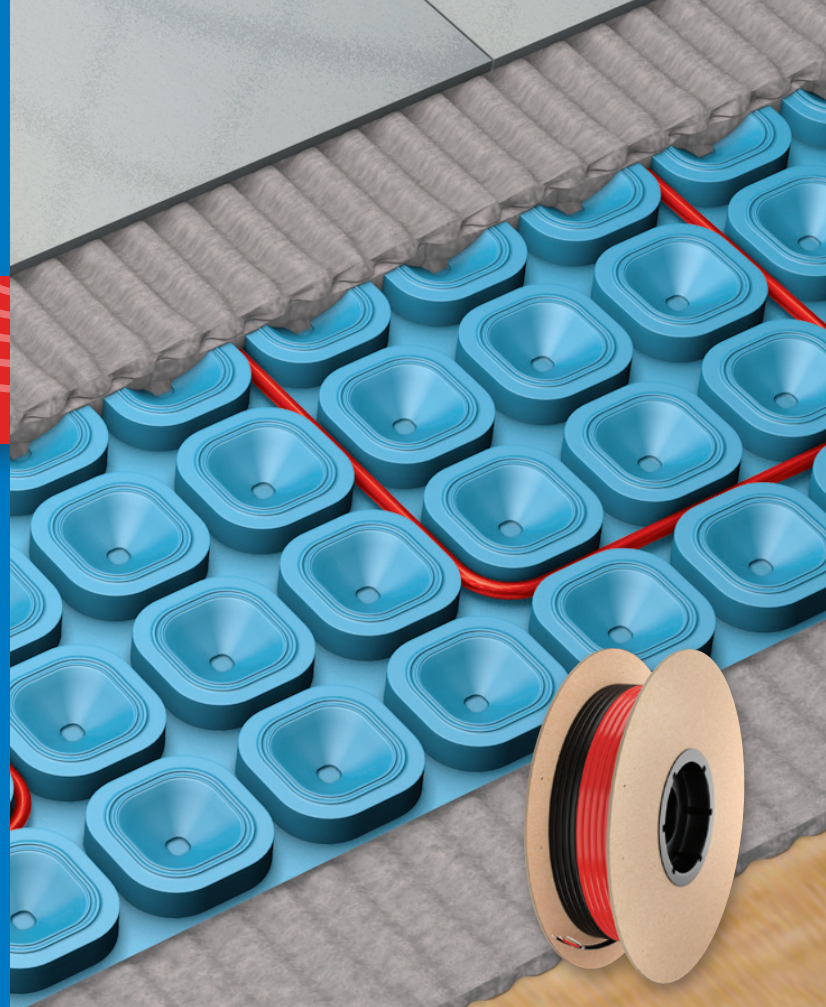




MapeheatTM

Cable

Radiant-Heating Cable for Use with Mapeheat Membrane



DESCRIPTION

Mapeheat Cable is a free-form, twisted-pair, floor-heating cable for use in any residential interior room where the comfort of radiant floor heating is desired. The cable can be spaced on site to provide 10, 12 or 15 W per sq. ft. based on the desired wattage output requirements of the installation. *Mapeheat Cable* is available in 33 lengths to accommodate areas as small as 6 sq. ft. (0.56 m²) and up to 293 sq. ft. (27.2 m²).

FEATURES AND BENEFITS

- Heats many types of flooring, such as tile, stone, luxury vinyl tile (LVT) and engineered wood
- Suitable for wet environments, such as showers and steam rooms
- Ultra thin cold-lead splice fits easily into *Mapeheat Membrane*
- Visible mid-point marker on heating cable
- Zero EMF (electromagnetic field) cable design
- Available in 120 V and 240 V
- Industry-leading customer service with a 25-year limited warranty

INDUSTRY STANDARDS AND APPROVALS

- “-W” wet rating per Table 1 of C22.2 NO.130-16 and CEC section 62-104
- *Mapeheat Cable* is compliant with the following standards: UL 1673 (USA), CAN/CSA-C22.2 No. 130-03 (Canada) and ANSI/IEEE 515.1-2005.

WHERE TO USE

- Any interior, residential area

- Approved for use with the following finished flooring: Ceramic tile, porcelain tile, granite, marble, natural stone, laminate/engineered wood floors, luxury vinyl tile (LVT) and luxury vinyl plank (LVP)

LIMITATIONS

- Never cut, shorten or modify the heating cable in any way; it will change the electrical characteristics of the cables and possibly cause overheating and a fire.
- Never use a cable designed for 110V/120V with 208V/220V/240V power, or vice versa.
- Never allow the cable to overlap or cross over itself.
- Do not use in exterior applications.
- Do not use with solid, hardwood flooring.
- If LVP is being installed, ensure that the manufacturer’s instructions allow for use with radiant heating systems and that the LVP is acclimated at least 24 hours before installation.
- Do not use in commercial applications, with the exception of residential multi-family, which is acceptable.
- Do not place objects directly on top of the floor that could impede/trap heat emanating from the floor heating system including but not limited to flush-to-floor furniture, rubber or memory-foam mats, and mattresses. These objects could cause unsafe temperatures to be reached underneath these objects that may damage the object and/or the flooring material.
- Do not install *Mapeheat Cable* in direct contact with any combustible surfaces, or install it in/on/under walls or in closets.
- Do not lay heating cable under cabinets, fixtures or appliances.

- Do not extend *Mapeheat Cable* beyond the room or area in which it originates.
- Do not use over cracks or control joints subject to out-of-plane movement, or where in-plane movement exists greater than 1/8" (3 mm).
- Do not cover expansion joints. Refer to the most current TCNA Handbook, Method EJ171, or TTMAC Tile Installation Manual, Detail 301MJ.
- Do not use over substrates containing asbestos, plank wood flooring, presswood, particleboard, chipboard, pressure- or oil-treated plywood, Lauan, Masonite, self-stick tile, laminate, metal, fiberglass or similar dimensionally unstable materials.
- Do not use for submerged applications or for floors subject to standing water.
- Do not use on bituminous substrates.
- Do not use on highly flammable material.
- The total R-value of layers on top of heating products should not exceed R-1.5 for installations that are 12 W per sq. ft. and R-1 for installations that are 15 W per sq. ft.
- Floor temperature is limited by the thermostat to 104°F (40°C). The typical operating temperature range of *Mapeheat* systems is 85°F to 95°F (29°C to 35°C).

SUITABLE SUBSTRATES

- Cured or young concrete. When used over young (green) concrete, the concrete must have cured for at least 7 days and be suitable to support tile installation traffic as determined by the project design professional, construction manager or general contractor.
- Cement mortar beds and leveling coats
- Cement backer units (CBUs) – see manufacturer's installation guidelines
- Industry-approved, exterior-grade plywood and APA Sturd-I-Floor, Exposure 1 OSB (in interior, dry areas only). Regarding deflection requirements, refer to local building codes; to ANSI A108.01, Section 3.4; to the TCNA Handbook, Field Installation Requirements, subsection "Maximum Allowable Deflection for Floor System and Substrate," and to the TTMAC 09 30 00 specifications guide.
- Existing, well-bonded ceramic tile and dimensionally stable natural stone
- Existing, well-bonded vinyl flooring without any foam or under-cushioning mat
- Existing, cement terrazzo floors
- Properly installed rubber underlayments, such as *Mapesonic™ RM*

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

SURFACE PREPARATION

- All suitable substrates must be smooth, structurally sound and free of any substance that could prevent or reduce proper bond and/or affect product performance.
- Gypsum-based patching or leveling compounds may leave a dusty residue on the surface. Clean the dusty substrate before applying an approved MAPEI primer and adhesive/mortar. See the technical bulletin "Tiling over gypsum" in the Tile & Stone Installation Systems section of MAPEI's Website.
- Wood subfloors must be prepared according to ANSI A108.01 and A108.02; to the TCNA Handbook, Field Installation Requirements, subsection "Maximum Allowable Deflection for Floor System and Substrate," and to the TTMAC 09 30 00 specifications guide.
- Do not use chemical means (acid etching or stripping) to prepare approved substrates. Use mechanical methods only.
- Concrete substrates must be flat, smooth and absorptive. To remove any bond-inhibiting materials, concrete substrates should be mechanically prepared to obtain the International Concrete Repair Institute (ICRI) concrete surface profile (CSP) #2.
- To improve the upward heat transfer from the cable to the flooring surface, insulate the concrete slab subfloor before installing *Mapeheat Cable*.

See the "Surface preparation requirements" reference guide in the Tile & Stone Installation Systems section of MAPEI's Website.

INSTALLATION GUIDELINES

- Consult a licensed electrician before ordering *Mapeheat Cable* to ensure that the correct voltage is ordered for the installation.
- *Mapeheat Cable* must be grounded in accordance with local and national electric codes.
- Any modification of or tampering with *Mapeheat Cable* will completely void the manufacturer warranty and liability.
- Do not energize *Mapeheat Cable* while it is on the spool; this could damage the cable and cause a fire.
- Use heating cables only for electric underfloor heating.
- The minimum bending radius of the cold lead is 2" (5 cm) and heating wire is 0.625" (16 mm).
- The installation of *Mapeheat Cable* must be in accordance with these instructions and in accordance with the National Electrical Code (USA) or the Canadian Electrical Code Part 1 – whichever is applicable – and as permitted by the authority having jurisdiction (AHJ).
- The thermostat used in the floor-heating system must be compliant with the following appropriate standard: UL 873 (USA) or CAN/CSA-C22.2 No. 24-93 (Canada).

- This equipment must be installed only by qualified personnel who are familiar with the construction and operation of the apparatus and with the risks involved. Only a licensed tile contractor or licensed electrician should install cable onto the subfloor. Only a licensed electrician should connect the system to household wiring and perform all electrical connections, according to local and national building codes and norms.
- Caution should be taken to guard against risk of electric shock, fire and bodily injury during the installation of this equipment.
- *Mapeheat Cable* should be connected to a dedicated electrical circuit.
- It is mandatory to install a Class "A" Ground Fault Circuit Interrupter (GFCI) or GFCI circuit breaker with each *Mapeheat Cable* installation. Thermostats must be equipped with Class "A" GFCI protection.
- De-energize power circuits before installing or servicing *Mapeheat Cable*.
- If tile is being installed, do not use sharp tools or power tools to clean grout lines. Cable damage identified at the grout line will void the warranty and liability.
- *Mapeheat Cable Guides*, *Mapeheat Membrane*, nVent NUHEAT Cable Guides and nVent NUHEAT Membrane are the only approved accessories to secure *Mapeheat Cable* onto the subfloor.
- Indicate on the electrical panel which circuit is used for the *Mapeheat Cable* System.
- The entire heating portion of *Mapeheat Cable* and mechanical joint must be secured to the floor and covered with self-leveling underlayment or tile mortar.
- Keep the ends of heating devices and kit components dry before and during installation.
- To improve the upward heat transfer from the cable to the flooring surface, insulate the concrete slab subfloor before installing *Mapeheat Cable*.
- The ambient/air temperature must be above 50°F (10°C) when the cable system is installed.
- Be sure to install the temperature sensing probe (included with the thermostat or sold individually) before installing final finished flooring.
- For further details, see the *Mapeheat Cable* Installation Handbook available at www.mapei.com or inside the *Mapeheat Cable* packaging.

PROPER CABLE SIZE AND CABLE SPACING

- Determine how much heat output is desired in order to determine cable spacing and select the correct cable.
- When installing *Mapeheat Cable* with *Mapeheat Membrane*: A 2-pillar spacing in *Mapeheat Membrane* produces 15 W per sq. ft. (high output), which is best

for installations on a concrete slab or when heat loss is a concern. An alternating pillar spacing of 2-3-2 in *Mapeheat Membrane* produces 12 W per sq. ft. (standard output). A 3-pillar spacing in *Mapeheat Membrane* produces 10 W per sq. ft. (low output), which is not typically recommended but acceptable for low-use areas when trying to stretch coverage.

- When installing *Mapeheat Cable* with *Mapeheat Cable Guides*: A spacing of 3" (7.5 cm) in *Mapeheat Cable Guides* produces 12 W per sq. ft. (standard output). Alternating spacing of 3"/2" (7.5/5 cm) in *Mapeheat Cable Guides* produces 15 W per sq. ft. (high output), which is best for installations on a concrete slab or when heat loss is a concern.
- Always install cable with spacing that results in no less than minimum output suggested and no more than 15 W per sq. ft. Output exceeding 15 W per sq. ft. may cause a fire or other heat-related damage.

**Mapeheat
Cable™**

Coverage for Mapeheat Cable, 120 V

Mapeheat Cable, 120 V				Coverage with Mapeheat Cable Guides		Coverage with Mapeheat Membrane		
				3" (7.5 cm) spacing (standard output)	3"/2"/3" (7.5/5/7.5 cm) spacing (high output)	3-pillar spacing (low output)	2/3/2-pillar spacing (standard output)	2-pillar spacing (high output)
Product #	Cable length	Cable amps	Cable watts	12 W/sq. ft. (129.2 W/m ²)	15 W/sq. ft. (161.5 W/m ²)	10 W/sq. ft. (107.6 W/m ²)	12 W/sq. ft. (129.2 W/m ²)	15 W/sq. ft. (161.5 W/m ²)
2855101	29 ft. (8.8 m)	0.7	80	8 sq. ft. (0.7 m ²)	6 sq. ft. (0.6 m ²)	9 sq. ft. (0.8 m ²)	8 sq. ft. (0.7 m ²)	6 sq. ft. (0.6 m ²)
2858101	47 ft. (14.3 m)	1.2	138	12 sq. ft. (1.1 m ²)	9 sq. ft. (0.8 m ²)	14 sq. ft. (1.3 m ²)	12 sq. ft. (1.1 m ²)	10 sq. ft. (0.9 m ²)
2858201	57 ft. (17.4 m)	1.4	170	15 sq. ft. (1.4 m ²)	12 sq. ft. (1.1 m ²)	17 sq. ft. (1.6 m ²)	15 sq. ft. (1.4 m ²)	12 sq. ft. (1.1 m ²)
2858301	98 ft. (29.9 m)	2.5	299	25 sq. ft. (2.3 m ²)	20 sq. ft. (1.9 m ²)	30 sq. ft. (2.8 m ²)	25 sq. ft. (2.3 m ²)	21 sq. ft. (2.0 m ²)
2858401	120 ft. (36.6 m)	2.9	343	30 sq. ft. (2.8 m ²)	25 sq. ft. (2.3 m ²)	36 sq. ft. (3.3 m ²)	31 sq. ft. (2.9 m ²)	25 sq. ft. (2.3 m ²)
2858501	148 ft. (45.1 m)	3.7	442	40 sq. ft. (3.7 m ²)	30 sq. ft. (2.8 m ²)	45 sq. ft. (4.2 m ²)	38 sq. ft. (3.5 m ²)	31 sq. ft. (2.9 m ²)
2858601	188 ft. (57.3 m)	4.7	562	50 sq. ft. (4.6 m ²)	40 sq. ft. (3.7 m ²)	57 sq. ft. (5.3 m ²)	48 sq. ft. (4.5 m ²)	39 sq. ft. (3.6 m ²)
2858701	234 ft. (71.3 m)	6	719	60 sq. ft. (5.6 m ²)	50 sq. ft. (4.6 m ²)	71 sq. ft. (6.6 m ²)	60 sq. ft. (5.6 m ²)	49 sq. ft. (4.6 m ²)
2858801	265 ft. (80.8 m)	6.8	810	70 sq. ft. (6.5 m ²)	55 sq. ft. (5.1 m ²)	81 sq. ft. (7.5 m ²)	68 sq. ft. (6.3 m ²)	55 sq. ft. (5.1 m ²)
2858901	318 ft. (96.9 m)	7.9	947	80 sq. ft. (7.4 m ²)	65 sq. ft. (6.0 m ²)	97 sq. ft. (9.0 m ²)	82 sq. ft. (7.6 m ²)	66 sq. ft. (6.1 m ²)
2859101	334 ft. (101.8 m)	8.5	1,021	85 sq. ft. (7.9 m ²)	70 sq. ft. (6.5 m ²)	102 sq. ft. (9.5 m ²)	86 sq. ft. (8.0 m ²)	69 sq. ft. (6.4 m ²)
2859201	377 ft. (114.9 m)	9.7	1,161	95 sq. ft. (8.8 m ²)	80 sq. ft. (7.4 m ²)	115 sq. ft. (10.7 m ²)	97 sq. ft. (9.0 m ²)	78 sq. ft. (7.2 m ²)
2859301	423 ft. (128.9 m)	10.8	1,299	110 sq. ft. (10.2 m ²)	90 sq. ft. (8.4 m ²)	129 sq. ft. (12.0 m ²)	109 sq. ft. (10.1 m ²)	88 sq. ft. (8.2 m ²)
2859401	474 ft. (144.5 m)	12.2	1,461	120 sq. ft. (11.1 m ²)	100 sq. ft. (9.3 m ²)	145 sq. ft. (13.5 m ²)	122 sq. ft. (11.3 m ²)	98 sq. ft. (9.1 m ²)

Coverage for Mapeheat Cable, 240 V

Mapeheat Cable, 240 V				Coverage with Mapeheat Cable Guides		Coverage with Mapeheat Membrane		
				3" (7.5 cm) spacing (standard output)	3"/2"/3" (7.5/5/7.5 cm) spacing (high output)	3-pillar spacing (low output)	2/3/2-pillar spacing (standard output)	2-pillar spacing (high output)
Product #	Cable length	Cable amps	Cable watts	12 W/sq. ft. (129.2 W/m ²)	15 W/sq. ft. (161.5 W/m ²)	10 W/sq. ft. (107.6 W/m ²)	12 W/sq. ft. (129.2 W/m ²)	15 W/sq. ft. (161.5 W/m ²)
2859501	56 ft. (17.1 m)	0.7	165	15 sq. ft. (1.4 m ²)	12 sq. ft. (1.1 m ²)	17 sq. ft. (1.6 m ²)	14 sq. ft. (1.3 m ²)	12 sq. ft. (1.1 m ²)
2859601	80 ft. (24.4 m)	0.9	224	20 sq. ft. (1.9 m ²)	15 sq. ft. (1.4 m ²)	24 sq. ft. (2.2 m ²)	21 sq. ft. (2.0 m ²)	17 sq. ft. (1.6 m ²)
2859701	102 ft. (31.1 m)	1.3	302	25 sq. ft. (2.3 m ²)	20 sq. ft. (1.9 m ²)	31 sq. ft. (2.9 m ²)	26 sq. ft. (2.4 m ²)	21 sq. ft. (2.0 m ²)
2859801	136 ft. (41.5 m)	1.7	403	35 sq. ft. (3.3 m ²)	30 sq. ft. (2.8 m ²)	41 sq. ft. (3.8 m ²)	35 sq. ft. (3.3 m ²)	28 sq. ft. (2.6 m ²)
2859901	178 ft. (54.3 m)	2.2	523	45 sq. ft. (4.2 m ²)	35 sq. ft. (3.3 m ²)	54 sq. ft. (5.0 m ²)	46 sq. ft. (4.3 m ²)	37 sq. ft. (3.4 m ²)
2860201	207 ft. (63.1 m)	2.6	632	55 sq. ft. (5.1 m ²)	45 sq. ft. (4.2 m ²)	63 sq. ft. (5.9 m ²)	53 sq. ft. (4.9 m ²)	43 sq. ft. (4.0 m ²)

Mapeheat Cable, 240 V				Coverage with Mapeheat Cable Guides		Coverage with Mapeheat Membrane		
				3" (7.5 cm) spacing (standard output)	3"/2"/3" (7.5/5/7.5 cm) spacing (high output)	3-pillar spacing (low output)	2/3/2-pillar spacing (standard output)	2-pillar spacing (high output)
Product #	Cable length	Cable amps	Cable watts	12 W/sq. ft. (129.2 W/m ²)	15 W/sq. ft. (161.5 W/m ²)	10 W/sq. ft. (107.6 W/m ²)	12 W/sq. ft. (129.2 W/m ²)	15 W/sq. ft. (161.5 W/m ²)
2860301	250 ft. (76.2 m)	3.1	742	65 sq. ft. (6.0 m ²)	50 sq. ft. (4.6 m ²)	76 sq. ft. (7.1 m ²)	64 sq. ft. (5.9 m ²)	52 sq. ft. (4.8 m ²)
2860401	277 ft. (84.4 m)	3.5	842	70 sq. ft. (6.5 m ²)	60 sq. ft. (5.6 m ²)	84 sq. ft. (7.8 m ²)	71 sq. ft. (6.6 m ²)	58 sq. ft. (5.4 m ²)
2860501	334 ft. (101.8 m)	4.3	1,020	85 sq. ft. (7.9 m ²)	70 sq. ft. (6.5 m ²)	102 sq. ft. (9.5 m ²)	86 sq. ft. (8.0 m ²)	69 sq. ft. (6.4 m ²)
2860601	358 ft. (109.1 m)	4.6	1,102	90 sq. ft. (8.4 m ²)	75 sq. ft. (7.0 m ²)	109 sq. ft. (10.1 m ²)	92 sq. ft. (8.5 m ²)	74 sq. ft. (6.9 m ²)
2860701	393 ft. (119.8 m)	5	1,211	100 sq. ft. (9.3 m ²)	85 sq. ft. (7.9 m ²)	120 sq. ft. (11.1 m ²)	101 sq. ft. (9.4 m ²)	82 sq. ft. (7.6 m ²)
2860801	472 ft. (143.9 m)	5.9	1,427	120 sq. ft. (11.1 m ²)	100 sq. ft. (9.3 m ²)	145 sq. ft. (13.5 m ²)	121 sq. ft. (11.2 m ²)	98 sq. ft. (9.1 m ²)
2860901	529 ft. (161.2 m)	6.8	1,621	135 sq. ft. (12.5 m ²)	110 sq. ft. (10.2 m ²)	162 sq. ft. (15.1 m ²)	136 sq. ft. (12.6 m ²)	110 sq. ft. (10.2 m ²)
2861101	561 ft. (171.0 m)	7.1	1,704	145 sq. ft. (13.5 m ²)	120 sq. ft. (11.1 m ²)	172 sq. ft. (16.0 m ²)	144 sq. ft. (13.4 m ²)	116 sq. ft. (10.8 m ²)
2861201	630 ft. (192.0 m)	8	1,914	160 sq. ft. (14.9 m ²)	130 sq. ft. (12.1 m ²)	193 sq. ft. (17.9 m ²)	162 sq. ft. (15.1 m ²)	131 sq. ft. (12.2 m ²)
2861301	665 ft. (202.7 m)	8.6	2,054	170 sq. ft. (15.8 m ²)	140 sq. ft. (13.0 m ²)	204 sq. ft. (19.0 m ²)	171 sq. ft. (15.9 m ²)	138 sq. ft. (12.8 m ²)
2861401	757 ft. (230.7 m)	9.6	2,314	190 sq. ft. (17.7 m ²)	160 sq. ft. (14.9 m ²)	233 sq. ft. (21.6 m ²)	195 sq. ft. (18.1 m ²)	157 sq. ft. (14.6 m ²)
2861501	849 ft. (258.8 m)	10.8	2,589	215 sq. ft. (20.0 m ²)	180 sq. ft. (16.7 m ²)	261 sq. ft. (24.2 m ²)	219 sq. ft. (20.3 m ²)	176 sq. ft. (16.4 m ²)
2861601	953 ft. (290.5 m)	12.1	2,905	240 sq. ft. (22.3 m ²)	200 sq. ft. (18.6 m ²)	293 sq. ft. (27.2 m ²)	246 sq. ft. (22.9 m ²)	198 sq. ft. (18.4 m ²)

Cable Specifications

Product specifics	Two single-conductor, Tefzel-coated resistance wires covered by a tin-plated copper braid and then coated with a durable copolymer (PVC) outer jacket
Product components	
Heating cable	2-wire, grounded, twisted pair with PVC outer jacket
Cold lead	2-wire, 16-18 AWG plus ground braid; PVC outer jacket; length of 10 feet (3.05 m)
Mechanical joint	Connecting joint between the heating cable and the cold lead
Operating voltage options	120 V and 240 V
Power output*	10 W per sq. ft. (low output) 12 W per sq. ft. (standard output) 15 W per sq. ft. (high output)
Minimum bending radius	1/2" (12 mm)
Maximum continuous exposure temperature	194°F (90°C)
Packaging	Mapeheat Cable packaging includes cable, cable guides and a Mapeheat Cable Installation Handbook.

* Power output is dependent on the spacing option chosen.

Mapeheat[™] Cable



For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability_USA@mapei.com (USA) or sustainability-durabilite@mapei.com (Canada).

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at

www.mapei.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use,

and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

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For the most current product data and BEST-BACKED[™] warranty information, visit www.mapei.com.

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