

**ARDEX GUIDE SPECIFICATION**  
**ARDEX FLEXBONE® HEAT In-Floor Heating Systems**

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**SECTION 09 30 00**  
**TILE & STONE INSTALLATION MATERIALS AND SYSTEMS**

**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract, and other related construction documents such as Division 01 specifications apply to this Section

1.2 SUMMARY

- A. This Section includes installation of an in-floor heating, uncoupling membrane and waterproofing subsequent to the installation of tile and stone.
1. ARDEX FLEXBONE® HEAT In-Floor Heating Systems
  2. ARDEX X 5™ Flexible Tile and Stone Mortar
  3. ARDEX FB 9 L™ Pourable ShearFlex® Mortar
  4. ARDEX X77™ MICROTEC Fiber Reinforced Tile and Stone Mortar
  5. ARDEX X 78™ MIRCOTEC® Semi-Pourable Tile and Stone Mortar
  6. ARDEX S 28™ MICROTEC® Rapid-Set, Rapid-Dry, Super-Format Tile and Uncoupling Membrane Mortar
  7. ARDEX X 90™ OUTDOOR MicrotecC3 Rapid-Set, Flexible Tile and Stone Mortar
  8. ARDEX X 7 R™ Rapid Set, Flexible Tile and Stone Mortar
  9. ARDEX X 32™ MICROTEC® Universal Rapid Setting and Drying Thin-to-Thick Bed Mortar
  10. ARDEX N 23™ MICROTEC® Rapid Set Natural Stone and Tile Mortar
- B. Complete ARDEX product and system installation details are provided in their corresponding Technical Data Sheet available at [www.ardexamericas.com](http://www.ardexamericas.com).
- C. Related Sections include the following:

1. Division 09 Tile & Stone Sections

1.3 REFERENCES

A. Robinson Test Results

1. ARDEX FLEXBONE HEAT received an Extra Heavy Rating.

B. ARDEX FLEXBONE HEAT is approved for CSA-W = “Wet Rating”.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product data, a Revit file with applicable materials meeting the Revit Content Style Guide, and installation instructions for each material and product used. Include manufacturer’s Safety Data Sheets.

B. Qualification Data: For Installer

1.5 QUALITY ASSURANCE

A. Installation of the ARDEX product must be completed by a factory-trained, certified applicator, such as an ARDEX LevelMaster® Elite or Choice Contractor, using mixing equipment and tools approved by the manufacturer. Please contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers.

1.6 WARRANTY

A. To register for the ARDEX FLEXBONE® HEAT System Warranty, please fill out and submit the Installation Worksheet and Warranty Validation Form located on the ARDEX FLEXBONE HEAT product page or within the cable packaging.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.

B. It is the responsibility of the installation contractor to inspect the ARDEX FLEXBONE HEAT for visual defects and to verify that it is the type before beginning the tile or stone installation. Refer to the tile or stone manufacturer’s specific recommendations.

C. Acclimate the area, setting material, ARDEX FLEXBONE HEAT and tile or stone in an enclosed building at a minimum of 65°F (18°C) for at least 24 to 48 hours before the installation. Lay the ARDEX UI 740 FLEXBONE flat during acclimation.

D. Handle products in accordance with manufacturer's printed recommendations.

## 1.8 PROJECT CONDITIONS

- A. Do not install material below 50°F (10°C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section.

## PART 2 - PRODUCTS

### 2.1 IN-FLOOR HEATING, UNCOUPLING MEMBRANE AND WATERPROOFING

- A. Acceptable Products:
  - 1. ARDEX FLEXBONE® HEAT; Manufactured by ARDEX Americas, Aliquippa, PA, USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)

### 2.2 IN-FLOOR HEATING, UNCOUPLING MEMBRANE AND WATERPROOFING INSTALLATION

- A. Acceptable Products:
  - 1. ARDEX X 77™, ARDEX X 5™, ARDEX X 78™, ARDEX FB 9 L™, ARDEX S 28™ MICROTEC®, ARDEX X 90™, ARDEX X 7 R™, ARDEX X 32™ and ARDEX N 23™; Manufactured by ARDEX Americas, Aliquippa, PA, USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)

## PART 3 – EXECUTION

### 3.1 PREPARATION

- A. Floor Plan: Please see the technical data sheet or system brochure for more information
- B. Subfloors: Prepare substrate in accordance with manufacturer's instructions.
  - 1. For all substrates listed below, acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Substrate and ambient temperatures must be a minimum of 50°F (10°C) for the installation of ARDEX products. Substrates must be dry during installation and cure.
  - 2. Substrates must be load-bearing, flat and structurally sound. Vacuum all dust and debris. All substrates must be flat with a maximum variance of 1/4" in 10' or (6 mm in 3 m) from the required plane per TCNA or TTMAC guidelines or as recommended by the tile or stone manufacturer (default to the most stringent requirement).
  - 3. Should pre-leveling or subfloor repair be required, refer to the technical data sheet.
- C. Concrete: All concrete substrates must be solid, structurally sound, fully cured, clean, dry and free of oil, wax, grease, asphalt, latex and gypsum compounds, curing compounds, sealers and

any contaminant that might act as a bond breaker. If necessary, mechanically clean the floor down to sound, solid concrete by shot blasting or similar. If necessary, mechanically clean the floor down to sound, solid concrete by shot blasting or similar. Over-watered, frozen or otherwise weak concrete surfaces also must be cleaned down to sound, solid concrete by mechanical methods. Sanding equipment is not an effective method to removed contaminants from the concrete.

D. Wood:

1. The wood subfloor must be constructed according to prevailing building codes. It must be solid and securely fixed to provide a rigid base free of undue flex. For tile installations, the subfloor must be constructed in accordance with ANSI L/360 or ANSI L/720 standards. Any boards exhibiting movement must be properly fastened. The surface of the wood must be clean and free of oil, grease, was, dirt, varnish, shellac and any contaminant that might act as a bond breaker. If necessary, sand down to bare wood. A commercial drum sander can be used to sand large areas. Do not use solvents, strippers or cleaners. Vacuum all dust and debris. Open joints should be filled with ARDEX SKM. It is the responsibility of the installation contractor to ensure that the wood subfloor is thoroughly clean and properly anchored prior to the installation of any ARDEX material.
2. Exterior grade plywood and OSB subfloors must be either 5/8" (approx. 15 mm) or 3/4" (18 mm) tongue and groove. Fasten plywood or OSB every 6" (15 cm) o.c. along sheet ends and 8" (20 cm) o.c. along intermediate supports with ring-shank nails or screws. Allow 1/8" (approx. 3 mm) between sheets. All sheet ends must be supported by a framing member and properly fastened.
3. The underlayment must be constructed of 3/8" (9 mm) plugged-faced exterior grade plywood or OSB and fastened every 6" (15 cm) along sheet ends and 8" (20 cm) in the panel field with ring-shank nails or screws. Allow 1/8" (approx. 3 mm) between sheets on all edges and ends and 1/4" (approx. 6 mm) at perimeter walls and any abutting surfaces. Offset underlayment joints from the joints in the subfloor.
4. Please refer to the technical data sheet for information on joist spacing and minimum subfloor requirements.

E. Highly-Absorbent Substrates:

1. High-absorbent substrates, such as gypsum, must be double primed with ARDEX P 51™ Primer.
2. The substrate must be thoroughly clean and free of dirt, debris, sealers and any contaminant that might act as a bond breaker. If necessary, mechanically clean the floor down to sound, solid material by shot blasting or similar.

F. Existing Tiles: Contact the ARDEX Technical Department for specific substrate requirements.

G. Joint and Crack Preparation:

1. All existing expansion joints, isolation joints and construction joints, as well as all moving cracks must be honored up through the substrate, uncoupling membrane and tile or stone as indicated by TCNA or TTMAC guidelines. These joints must also be honored up through the heating cables.

2. Perimeter movement joints are essential for door areas, thresholds between rooms and geometric offsets, as well as around walls, penetrations and fixed objects. Install ARDEX UD 146 Edge Insulation Strip along walls, rising structural elements and surface penetrations. Arrange perimeter movement joints in accordance with industry standards. Per TCNA/TTMAC guidelines, please note that underfloor heating areas require additional joints, as do interior areas exposed to direct sunlight, such as floors in front of floor-length windows.
3. For areas with heavy loads, expansion joint profiles may be necessary. Contact the expansion joint profile manufacturer to ensure suitability for the intended use.
4. As needed, dormant cracks and dormant control joints can be filled with ARDEX SKM Skimcoat Patch & Finishing Underlayment, following the instructions in the technical data sheet.

### 3.2 MIXING

- A. When mixing sanded materials, ARDEX recommends using the ARDEX DUSTFREE™ or a standard “gutter hook” vacuum attachment in combination with a wet/dry (Shop-Vac® style) vacuum and HEPA dust extraction vacuum system. Additionally, each bag should be handled with care and emptied slowly to avoid creating a plume of dust. Contact the ARDEX Technical Service Department for more details on ARDEX products and air quality management.
- B. Comply with manufacturer's printed instructions on mixing of material.

### 3.3 APPLICATION OF INSTALLATION MATERIALS

- A. Install Uncoupling Membrane
  1. Install the uncoupling membrane in accordance with the detailed instructions in the technical data sheet or the system brochure.
  2. Comply with manufacturer's printed instructions for mixing of material, installation, and cure. For questions contact the ARDEX Technical Services Department at (724) 203-5000.
- B. Install Tile or Stone with Mortar
  1. Install tile or stone with the appropriate mortar as indicated within the technical data sheet.
  2. Comply with manufacturer's printed instructions for mixing of material, installation, and cure. For questions contact the ARDEX Technical Services Department at (724) 203-5000.

### 3.4 FIELD QUALITY CONTROL

- A. Where required, contact manufacturer for field sampling methods and procedures.

### 3.5 PROTECTION

- A. Avoid foot traffic during installation and until the mortar has cured. Prior to installing tile and stone, ARDEX FLEXBONE HEAT should be protected with boards in areas where foot traffic is necessary.

**END OF SECTION**