MasterSeal
Roof Waterproofing Guide
Durable Roofing Solutions with Liquid Resin Systems
The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide.

We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts, performance flooring and tiling solutions.
Any building needs an external protection just like a “skin” to avoid its deterioration through the effects of natural elements and weathering. As part of the building envelope, roofs have a decisive role in the durability of the structure as, being the top surface of the building, prevent water penetration through horizontal or slightly inclined surfaces. All these factors make roofs as one of the most critical parts in a structure.

This is the reason why roof leakages are often the most visible and commonly claimed for damage in a building as inadequate roofing affects the functionality of the entire structure. A durable roof waterproofing system which resists the temperature changes and environmental aggressions such as pollution and acid rain is therefore a vital part of the building envelope.

Roof protects not only the building itself but also the goods and the equipment installed below. This is why a good performance of the roof not only improves the durability of the building but also secures the investment in materials and production assets in industrial buildings.
MasterSeal Roof Liquid Systems for Roof Waterproofing

MasterSeal® Roof systems form a fully bonded, seamless waterproofing membrane that avoids welds and seams that are typically the weaker spots in any waterproofing system. MasterSeal Roof systems can be installed on most substrates, including old concrete, built-up felt asphalt and timber substrates.

MasterSeal® Roof systems allow for simple applications on roofs with build-ups, penetrations and complicated structures. Also leaking roofs can be repaired in many cases without removing the old waterproofing layer. This offers clear time and cost savings and reduces the costs for disposal of old membranes.

MasterSeal® Roof systems allow for simple applications on roofs with build-ups, penetrations and complicated structures. Also leaking roofs can be repaired in many cases without removing the old waterproofing layer. This offers clear time and cost savings and reduces the costs for disposal of old membranes.

Unlimited surfaces
Liquid systems allow easy detailing creating a waterproof membrane around details quickly.

Long term service life
MasterSeal® Roof systems can be applied on exposed surfaces exposed to a high range of temperatures, weathering and rain conditions. Long term durability in this conditions without rigidisation, softening or UV related damages. This special properties allow a service life up to 25 years.

Applicable in shaped substrates
Perfect forming in shaped surfaces. Spray applied systems can be applied on horizontal, vertical and sloped surfaces.

No disruption of normal activities
Business can proceed normally during application of MasterSeal Roof systems. Conditioning systems and/or installations can continue uninterrupted.

Lightweight
Adding minimal dead load on the roofs. Only approx. 3 kg/m².

For new and refurbished roofs
Application is possible on any substrate type, even on existing roofs without the need of removal of previous waterproofing systems.

Quick hardening
Application of different parts of the system can proceed without delays or downtimes as spray applied membranes harden very quickly.

Quick installation
Application using spray equipment can achieve application yields up to 1,000 m² per day.

Easy detailing
Liquid systems allow application of a continuous membrane on large surfaces without limitations.

Conditioning systems and/or installations can continue uninterrupted.

Lightweight
Adding minimal dead load on the roofs. Only approx. 3 kg/m².
The MasterSeal Roof Systems

Layout

The MasterSeal® Roof waterproofing systems are composed of 3 product layers that are applied fully bonded on the substrate. The clever combination of these layers contributes to the performance and the durability of the system.

1. **MasterSeal® P primers**
   - are an important component of the system to ensure the adhesion of the waterproofing system to all substrates.
   - Fully bonded membrane systems prevent the water circulation between the layers even if there is a leakage, helping its detection, localization and repair.

2. **MasterSeal® M membranes**
   - provide waterproofing capacities to the system. Once cured, MasterSeal M membranes have high elasticity and crack bridging properties, necessary to avoid water leakages in case of moving cracks in substrates.
   - Membranes can be one or two components and can be spray or hand applied.

3. **MasterSeal® TC topcoats**
   - protect the membrane from the action of weather and UV light. Topcoats are optional in some cases but always contribute to improve the durability of the waterproofing system and the aesthetical appearance of the finished roof.

4. **Substrate**
   - MasterSeal Roof waterproofing systems can be applied, fully bonded, to most substrates including concrete, steel, cement screed, glass, reinforced polyester, timber etc.

---

Spray Applied Systems

**MasterSeal® Roof 2689**
- Roof waterproofing system based on 1:1 spray applied polyurea membrane.

- 1:1 Spray applied, 100 % polyurea, membrane with quick reaction time. Full operational after only 2 hours.

1. **Topcoat (optional) – MasterSeal® TC 258**
   - 2 x 0.15 kg/m²

2. **Membrane – MasterSeal® M 689**
   - 2 – 2.5 kg/m²

3. **Primer – MasterSeal® P**
   - (according substrate)

---

**MasterSeal® Roof 2111**
- Roof waterproofing system based on 1:1 spray applied membrane for applications with no fire retardancy requirement.

- 1:1 Spray applied membrane with quick reaction time. Full operational after 2 days.

1. **Alternative topcoat – MasterSeal® TC 258**
   - 1 x 0.3-0.4 kg/m²

2. **Membrane – MasterSeal® M 811**
   - 2 – 2.5 kg/m²

3. **Primer – MasterSeal® P**
   - (according substrate)
Hand Applied Systems

**MasterSeal® Roof 2164**
Roof waterproofing system based on the hand applied 1K membrane according to guideline ETAG 005-06. With ETA 09/0396.

- **Topcoat** – MasterSeal® TC 640
  2 x 0.15 kg/m²
- **Membrane** – MasterSeal® M 640
  2 x 0.7 kg/m²
- **Primer** – MasterSeal® P 640 (according substrate)

**MasterSeal® Roof 2166**
Roof waterproofing system based on the hand applied 2K membrane for applications with no fire retardancy requirement.

Hand applied membrane with long workability time, fully hardened and operational after 4 days.

- **Alternative topcoat** – MasterSeal® TC 258
  1 x 0.3-0.4 kg/m²
- **Membrane** – MasterSeal® M 860
  2 x 0.5 kg/m²
- **Primer** – MasterSeal® P (according substrate)

Detailing

Liquid systems allow easy detailing creating the membrane around the details quickly without the need of seams, prefabricated moulded parts, mechanical fixings or additional flashings. See below, as guidance purposes only, some common solutions for most needed details in roofs.

- **Detail 1**: View of the specific detailing solution for horizontal – vertical connections.
- **Detail 2**: View of the specific detailing solution for surface mounted installations.
- **Detail 3**: View of the specific detailing solution for membrane continuity in drains.
- **Detail 4**: View of the specific detailing solution for movement joints.
System Solutions

Inverted roof, with gravel protection
1. Gravel
2. Geotextile
3. Styrodur
4. Membrane
5. Primer
6. Substrate

Inverted roof, with tiling protection
1. Tiles
2. Tile adhesive
3. Mortar
4. Geotextile
5. Styrodur
6. Membrane
7. Primer
8. Substrate

Green roof
1. Grass and plants
2. Soil
3. Geotextile
4. Styrodur
5. Membrane
6. Primer
7. Substrate

Insulated roof with PU foam
1. Topcoat
2. Membrane
3. PU foam insulation
4. Substrate

Sandwich panel
1. Topcoat
2. Membrane
3. Primer
4. Sandwich panel
Risk Management: BASF System Products for Successful Projects

This guide illustrates the waterproofing of different types of roofs. Whatever the area to be treated, several components are required. The right combination and compatibility are essential to ensure successful performance.

Based on our global knowledge of construction physics and our experience and track record in the repair and waterproofing of several structures, we know that Risk Management is a unique and relevant topic in the construction industry and requires reliability in all respects, including products, full system solutions (from membranes to detailing products), professional consultancy, approved and warranted application, etc.

Causes of construction failures and the probability of their occurrence have been identified following several surveys in Europe, resulting in four basic categories of deficiency: Design, Construction, Materials, Use and Maintenance.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Use and Maintenance</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 %</td>
<td>10 %</td>
<td>39 %</td>
</tr>
<tr>
<td>Execution</td>
<td></td>
<td>40 %</td>
</tr>
</tbody>
</table>

To control these risks and secure their investment, owners, investors, general contractors and engineers first and foremost need complete waterproofing solutions supplied by a reliable manufacturer with proven experience in Risk Management.

Risk Management provided by BASF focuses on reducing the probability of the occurrence of the causes that have been identified as damage generators:

- Detailed analysis of needs and review of specifications and drawings to ensure perfect waterproofing.
- Improving planning reliability of waterproofing installation objectives with defined product systems that include not only waterproofing membranes but also detailing such as joint treatment, crack injection, substrate repair, etc.
- Ensuring greater certainty about technical application and projected durability based on expert workmanship.
- Managing installation via BASF Licensed Contractors and/or BASF Approved Applicators.

Experience:
Our Master Builders Solutions experts solve challenges on job sites worldwide. This is proven by our extensive list of job references.

Expertise in application:
BASF System Partners, following an intensive and continued training programme, offer the reliable and professional application of systems. This ensures the successful completion of jobs and, thus, long-term serviceable structures. Our exclusive BASF System Warranty includes a documented application carried out by a BASF System Partner.

Design and specification:
Our Master Builders Solutions experts contribute to the analysis and design process, combining single products into complete system solutions.

Detailing:
We understand the necessary products and solution approach, including details (joints, transition points, penetrations, etc.) that are often neglected, although they represent the most vulnerable points.

Product systems:
Products with high performance characteristics are required in this and all other applications, but it is always essential that these products are designed and thus certified for the specific intended use. Our comprehensive range of waterproofing systems under the Master Builders Solutions is documented and certified in different European countries for use in the waterproofing of different building areas.
Master Builders Solutions from BASF for the Construction Industry

Contact us:

MasterAir®
Complete solutions for air entrained concrete

MasterBrace®
Solutions for concrete strengthening

MasterCast®
Solutions for the manufactured concrete product industry

MasterCem®
Solutions for cement manufacture

MasterEmaco®
Solutions for concrete repair

MasterFinish®
Solutions for formwork treatment

MasterFlow®
Solutions for precision grouting

MasterFiber®
Comprehensive solutions for fiber reinforced concrete

MasterGlenium®
Solutions for hyperplasticized concrete

MasterInject®
Solutions for concrete injection

MasterKure®
Solutions for concrete curing

MasterLife®
Solutions for enhanced durability

MasterMatrix®
Advanced rheology control solutions for self-consolidating concrete

MasterPet®
Solutions for water tight concrete

MasterPolyheed®
Solutions for mid-range concrete

MasterPozzolith®
Solutions for water-reduced concrete

MasterProtect®
Solutions for concrete protection

MasterRheobuild®
Solutions for high strength concrete

MasterRoc®
Solutions for underground construction

MasterSeal®
Solutions for waterproofing and sealing

MasterSet®
Solutions for set control

MasterSure®
Solutions for extraordinary workability retention

MasterTile®
Solutions for tiling systems

MasterTop®
Solutions for industrial and commercial floors

Master X-Seed®
Advanced accelerator solutions for concrete

Ucrete®
Flooring solutions for harsh environments