

INSTALLATION INSTRUCTIONS

FOR MEASURING
HUMIDITY VALUES IN
FLAT ROOFS

ROOF
PROTECTOR

1. GENERAL

The prolonged effect of moisture between waterproofing membrane and vapour barrier in the warm roof results in the thermal insulation materials absorbing moisture.

In the event of defects within flat roof sealing membranes, it is often the case that thermal insulation materials become soaked unnoticed and moisture damage in the interior only becomes evident years later.

Prolonged exposure to moisture in thermal insulation materials sandwiched between relatively impermeable boundary layers (waterproofing membrane and vapour barrier) leads to significant moisture absorption by the majority of thermal insulation products (see also problems with timber structures).

Making moisture retention in the roof layer package identifiable in good time (that is before the thermal insulation or timber structure is saturated), is a huge step forward for the long-term functional performance of flat roofs. This is not only an economic advantage but also an attribute of modern, safe flat roofs.

The ROOF PROTECTOR represents a reasonably-priced moisture detector which can be combined with all commercially available roof coatings and enables permanent tracking of moisture in the layers of the roof structure. In addition, the Roof Protector can be used on the roof to verify and demonstrate successful repairs.

Rainwater penetrating the roof structure from the outside due to damage or condensation from inside accumulates on the vapour barrier and, following the roof slope, is directed towards the low point of the roof (position of the ROOF PROTECTOR). When the film of water reaches the ROOF PROTECTOR's sensor, which is mounted underneath the thermal insulation board, the sensor's electrical parameters change and water is therefore detected.

The ROOF PROTECTOR can easily be checked from the roof surface during annual cleaning and maintenance work.

The test result can be recorded annually in the standardised test report.

The ROOF PROTECTOR is patent-protected and meets the requirements of standard B3691 for the monitoring of flat roofs in use category 3.

2. PRODUCT DESCRIPTION

The ROOF PROTECTOR is an indicator for the detection of moisture in flat roof structures and consists essentially of the following components:

- Moulded part
- Sensor carrier
- Water sensor
- Cable

Also necessary is a fitting kit for installation in the roof structure and a measuring instrument with water adapter for evaluation of the measurement.

3. TECHNICAL DATA

ROOF PROTECTOR

Diameter: 80 mm

Length: 500 mm

Sensor: Electrode RP500

Material: Plastic

FITTING KIT

Nominal diameter: DN100

Material: Polyurethane

Colour: Black

4. APPLICATION

The ROOF PROTECTOR is a component specifically designed for the detection of liquid water for use in flat roofs. It is used in flat roof structures as a measuring system for demonstrating the leak-tightness of roof sealing membranes or early detection of water ingress.

The protector is suitable for installation in new buildings and also for retrofitting in existing roofs. One important area in which the protector can be used is the field of roof repairs as it enables quantification of the water and thus provides proof of successful repairs.

According to Austrian Standard B3691, additional measures are required for roofs of use category K3.

Additional measures reduce the cost of consequential damage and allow defects in the roof sealing membrane or in its structural surroundings to be pinpointed. One of these measures is the installation of moisture sensors in the roof structure.

Building insurers may also require the installation of moisture detection systems for flat roofs in residential dwellings, commercial buildings, civil engineering structures, hospitals and also in particularly sensitive production halls as this will also reduce the benefits paid by insurers' in the event of damage. The ROOF PROTECTOR can be installed in the most common flat roof structures (e.g. bitumen, EPDM film, with or without gravel, EPS or rock wool insulation).

The ROOF PROTECTOR should be set at regular intervals on the roof and is preferably fitted at the low point of the sub-roof in sloping sub-roofs.

With non-sloping sub-roofs, the static structure of the sub-roof must be taken into account and the installation point and number of indicators should be specified according to the local conditions.

Partitions in the roof structure each measuring approx. 100m² are recommended for large roof areas.

Installation should be carried out by qualified and trained staff who can preferably show that they hold the IFB (Institute for Flat Roof Construction) roof sealing operatives' pass.

The moisture sensors must be evaluated at least once a year in the course of maintenance and repair of the roof surfaces.

5. PROCESSING GUIDELINES

The materials must be processed in accordance with the manufacturer's guidelines. The processing guidelines of the IFB - Institute for Flat Roof Construction www.ifb.co.at must be observed.

6. MAINTENANCE

The maintenance indicator must be checked once a year for damage, leak-tightness and function.

7. CONDITIONS OF USE

Ambient temperature: -25 to +40 °C

Outdoor temperature at the time of measuring: +15 to 25 °C

Detection limits: film of water on moisture barrier > 3 mm

Height of roof structure: 100 to 500 mm

8. INTENDED USE

- The Roof Protector is intended for water detection in flat roof structures.
- It must be installed on the roof by competent experts trained in fitting Roof Protectors in accordance with the installation instructions.
- It must be fitted in compliance with the applicable standards for the execution of flat roofs.
- Installation is only permissible using the appropriate fitting kit.
- It must only be connected to the measuring instruments and data loggers specified by the manufacturer.
- If need by, any installation moisture present in roofing materials must be taken into account when assessing the measured results.
- Special installation situations (e.g. shaded areas) must be taken into account during the structural assessment.
- A Roof Protector which is not properly installed may lead to incorrect measurements or damage.
- One-off measurements must be regarded as a snapshot image.
- Long-term records should only be interpreted by trained and qualified roof technicians.
- The standard Roof Protector is suitable for installation in roof structures from 100 mm to 500 mm thick.
- The Roof Protector must be maintained according to the manufacturer's guidelines in the course of annual maintenance.
- A properly executed moisture barrier is the prerequisite for perfect functioning of the Roof Protector. Defects in the vapour barrier can lead to malfunctions.
- Partitions in the roof package due to structural barriers or element joints must be taken into account in the planning and design.

9. PHOTO DOCUMENTATION

9.1 INSTALLATION OF A ROOF PROTECTOR

STEP 1 – EXPOSE AND CLEAN FITTING LOCATION



STEP 2 – CREATE ACCESS HOLE



STEP 3 – REMOVE CORE OF INSULATION MATERIAL



STEP 4 – APPLY PRIMING COAT (ONLY ON BITUMEN)



STEP 5 – CLEAN INSTALLATION HOLE AND PREPARE INSTALLATION



STEP 6 – INSERT ROOF PROTECTOR



STEP 7 – GUIDE CABLE THROUGH CONNECTION FLANGE



STEP 8 – INSTALL CONNECTION FLANGE ON ROOF





STEP 9 – FIT PIPE ON CONNECTION FLANGE



STEP 10 – FIT PIPE ON CONNECTION FLANGE





STEP 10 – FIT PIPE ON CONNECTION FLANGE



STEP 11 – SEALING USING JOINT TAPE AND ROUND BUTYL CAULKING STRIP

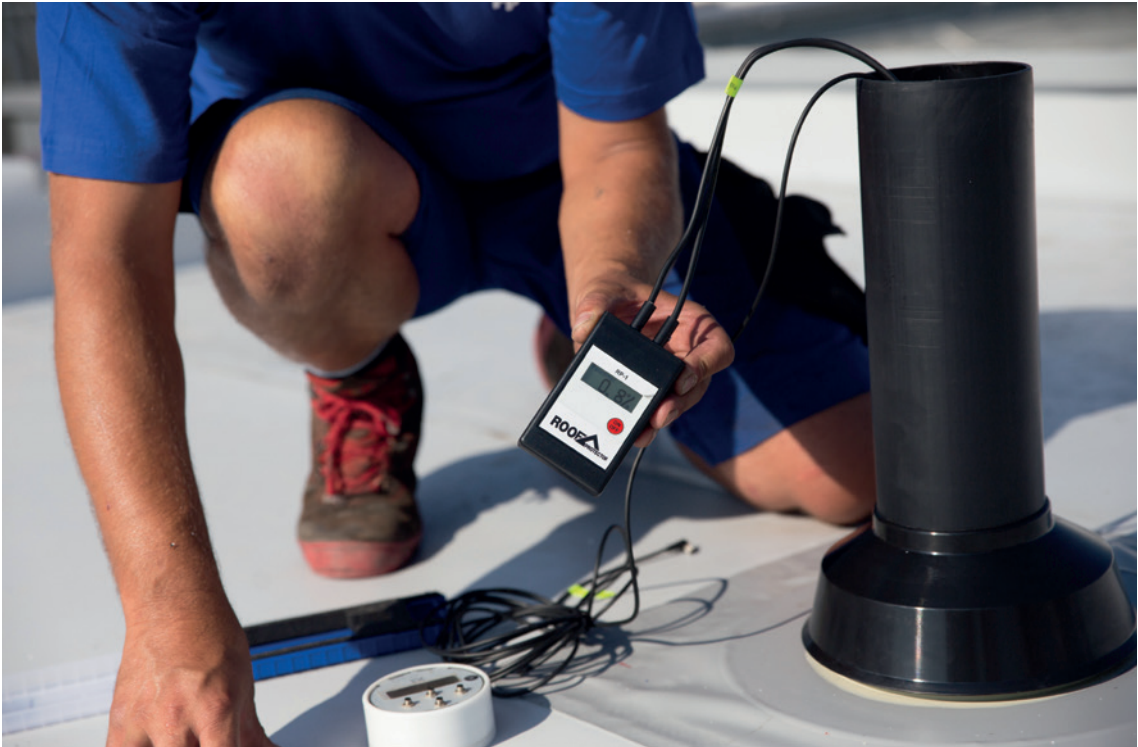


STEP 12 – INSERT ROOF PROTECTORS



STEP 13 – FUNCTIONAL TEST

Using portable measuring instrument



STEP 14 – FUNCTIONAL TEST

Using data logger



STEP 15 – INSTALL PROTECTIVE CAP (ONLY IF ROOF PACKAGE IS DRY)6



STEP 16 – INSTALL SEAL AND RAIN HOOD





STEP 17 – SEAL FITTING LOCATION WITH GRAVEL (ONLY FOR GRAVELLED ROOFS)



STEP 18 – FINAL INSPECTION AND VACATE SITE



TOOL LIST/MATERIALS LIST:

- | | |
|--------------------------------|-------------------------------|
| Hand Extruder | Nozzle brush |
| Utility cutter (Stanley knife) | Core drill DN80 |
| Scissors | Wet vacuum cleaner |
| Chamfer plane | Portable measuring instrument |
| Test needle | Data logger (optional) |
| Welding roller | |

PRODUCED BY
RPM GEBÄUDEMIONITORING GMBH

Available in all good specialist roofing stores
E-Mail: office@roofprotector.at