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POST-ANALYSIS REPORT

An Introduction

Aquapol International was founded in Austria in 1985 by Engineer Wilhelm Mohorn. The Company specializes in the dehydration of buildings and prevention of rising damp.

Aquapol South Africa (Pty) Ltd came into existence in early 2012 and since then has successfully done many installations country-wide solving every kind of rising damp problem. Our 30 year history internationally is testament to our success.

Rising damp is a major concern for home and building owners and constitutes a high percentage of humidity issues in buildings. Left unresolved it can be the cause of structural damage and can significantly reduce the value and the life span of a building. It is also a well-known fact that health risks exist for the occupants of buildings and homes which carry wall moisture.

Aquapol SA installs a rising damp system that eradicates rising damp from any building made out of brick, stone or other porous masonry materials and keeps the building dry permanently. The system is installed with relative ease by a trained Aquapol engineer and installation can take only a few hours depending on the size of the building. No construction or wall-cutting work is needed.

Once the system is installed it reverses the polarity of the water molecules inside the wall and sends the water back down into the ground from whence it came. It is both eco-friendly and cost-efficient. Once installed, two free services follow over a three-year period. A detailed report is provided by the technical engineer showing precise comparative measurements from the point of installation through to the complete drying out phase.

Information

Aquapol has examined the Castel of Good Hope and found very high levels of wall moisture

Within majority of the property walls that were inspected. The rising damp measures from approximately 20cm to 100cm.

It is to be expected in older buildings that the damp-proof course (DPC) will start to corrode. Properly installed DPC, using a good quality material, should **only** keep a building free of rising damp for at least 50 years.

No conventional repairs will resolve this problem
The Aquapol System is the only long term
Eco-friendly solution

Future renovations will therefore be ineffective given the quantity of water in the walls. We anticipate rising

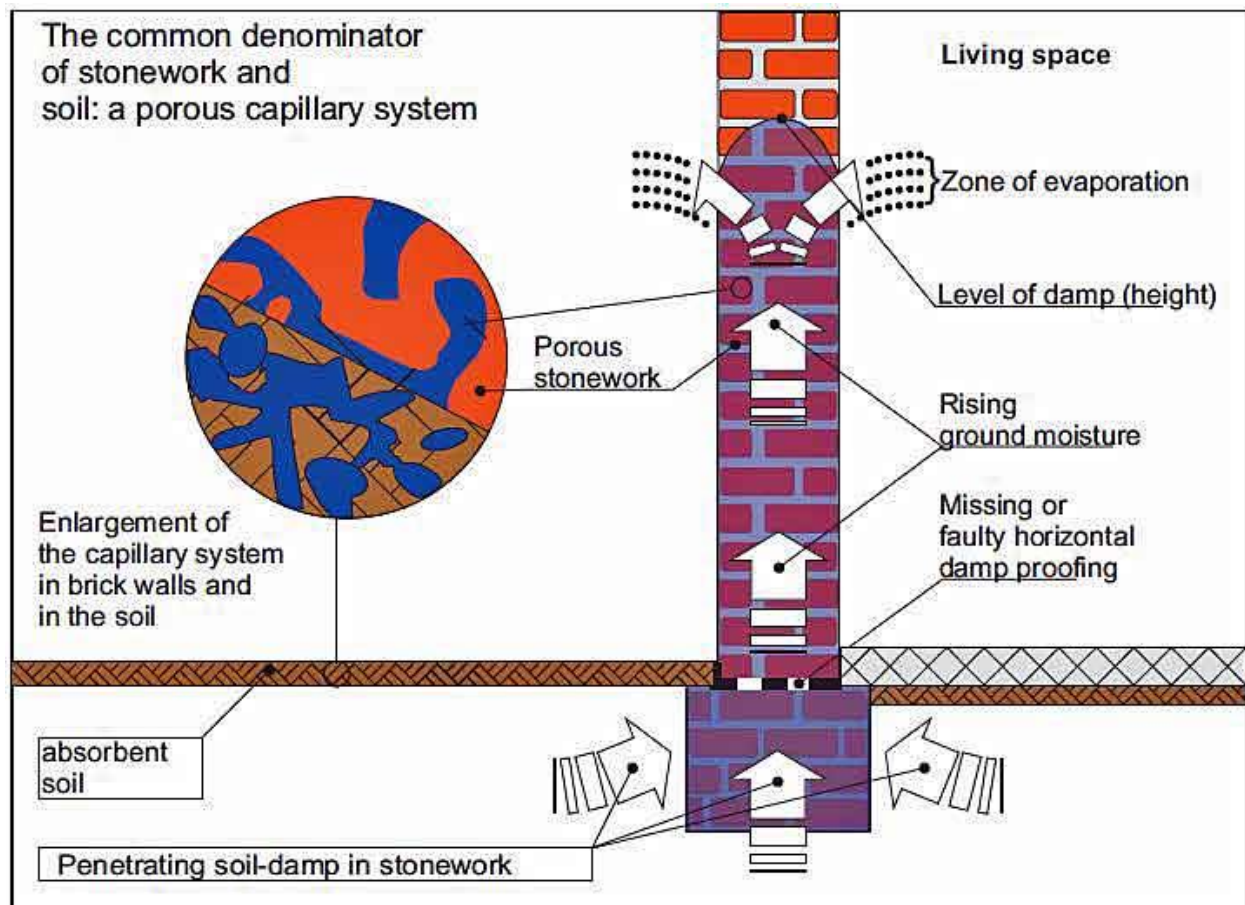
damp to persist despite any future conventional renovations and repairs. Thus superficial coatings (plastering and painting) undertaken during any future renovations will only serve to mask the problem further and the symptoms will keep re-emerging.

Rising damp is where water molecules creep up the capillary system within the brick and stonework of a building and cause humidity and undesirable damage to the masonry and its aesthetics. The moisture rises up the wall – usually up to about 1.5 meters. The level above ground at which the water evaporates from the wall is called the “Evaporation Zone” and at this point most damage to the wall can be expected.

When the soil contains appreciable amounts of soluble salts, these are drawn (in solution) into the network of pores in the wall. These salts however cannot evaporate with the moisture. Consequently, the salts build up just beneath the wall or plaster surface where they grow as minute crystals.

The crystal growth, as a result of the physical force, is sufficient to rupture the masonry/plaster, causing fretting and crumbling, even on very strong materials. This combination of salts and rising damp causes substantial damage to the building materials.

Short of replacing the DPC (impossible to do and a disruptive and costly exercise) the only other option is to apply corrective measures. There are a number of solutions on the market that can be employed but none of them provides a lasting result.



EXAMPLES OF HYDROMETER READINGS



Digital reading 52.5

**Dry wall
readings
approx. 50-70
units on the
GANN
Hydrometer:**



Digital reading 189.1

**Reading on
the Human
Body [70-80%
moisture]
approx. 180
units on the
GANN
Hydrometer:**

Negative effects of Rising Damp

With damp comes the associated mould.

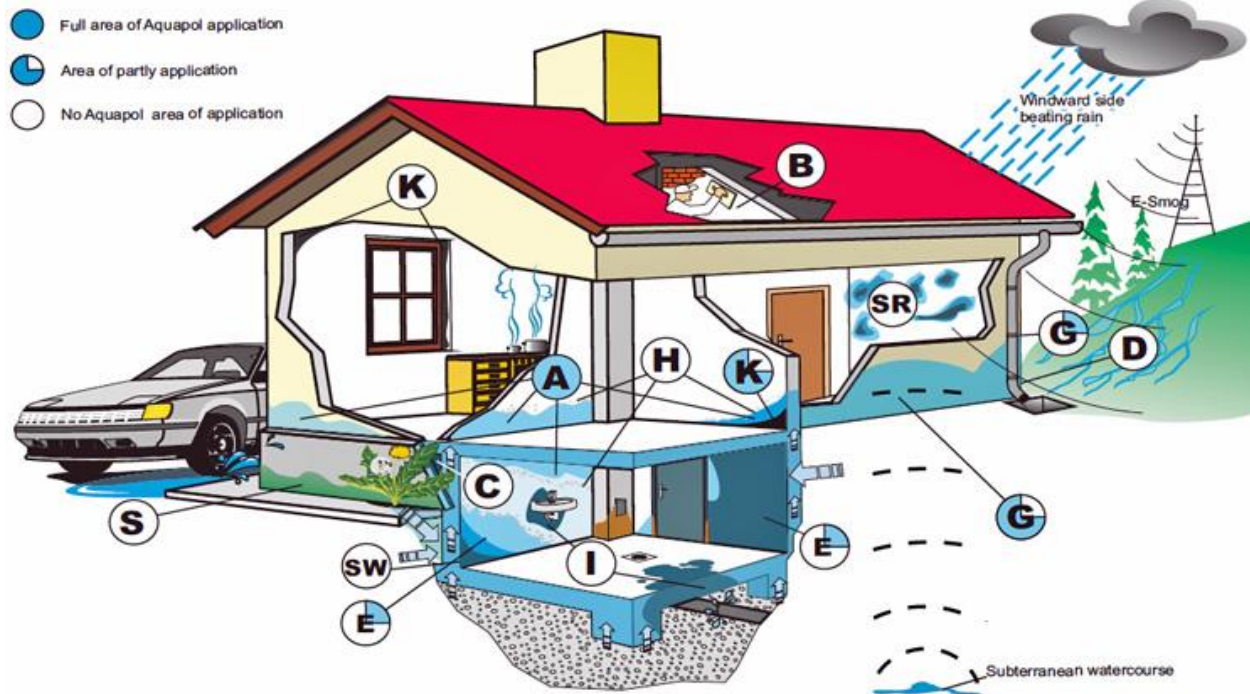
Additional effort should be made to keep away from damp and mould:

- babies and children,
- elderly people,
- those with existing skin problems, such as eczema,
- or respiratory problems, such as allergies and asthma,
- anyone who is immuno-compromised (e.g., chemotherapy patients).

(excerpt from the World Health Organization Damp and Mould Brochure)



EXAMPLES OF DIFFERENT MOISTURE FACTORS IN A BUILDING



- (S) Splash water (D) Slope pressurized water (H) Hygroscopic humidity (SR) Damp from beating rain (C) Chemically caused damp (K) Condensation
 (B) Building damp (SW) Surface water (E) Sideways penetrating damp (I) Damage from Installation (G) Geological or technically caused damp of a disturbance field (A) Rising damp

NOTED PROBLEMS IN THE BUILDING

(A)

RIISING DAMP:

- Rising Damp symptoms are evident within majority of the walls inspected this was ascertained by the high moisture readings on the GANN Hydrometer







OTHER MOISTURE PRODUCING FACTORS



Hygroscopic moisture:

- Efflorescence occurring on the wall surface





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Lateral [sideways] moisture penetration:

- Differences on the height of floor levels

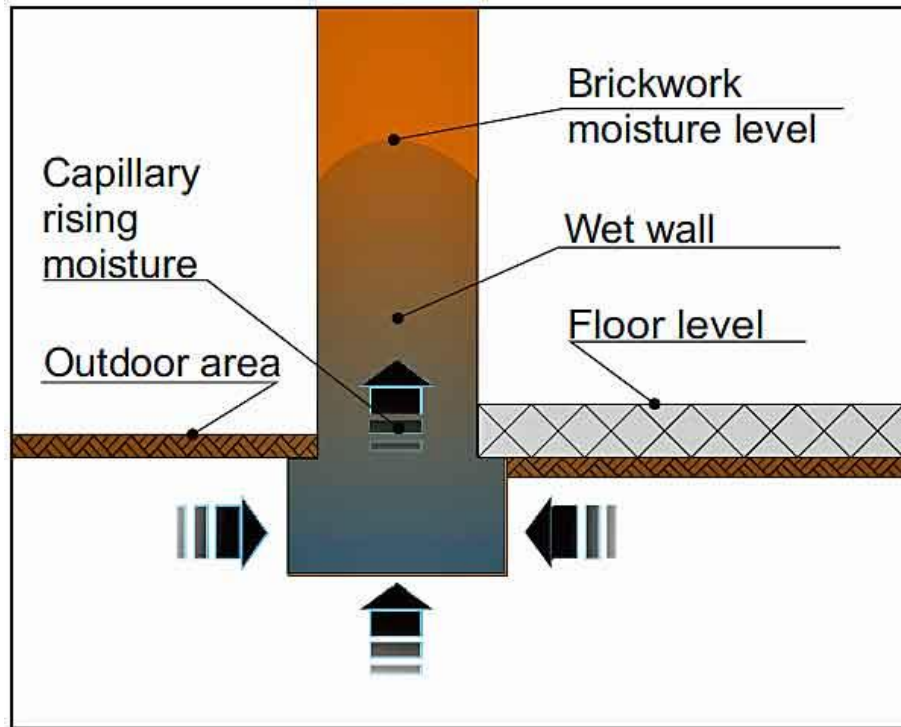


Waterproofing

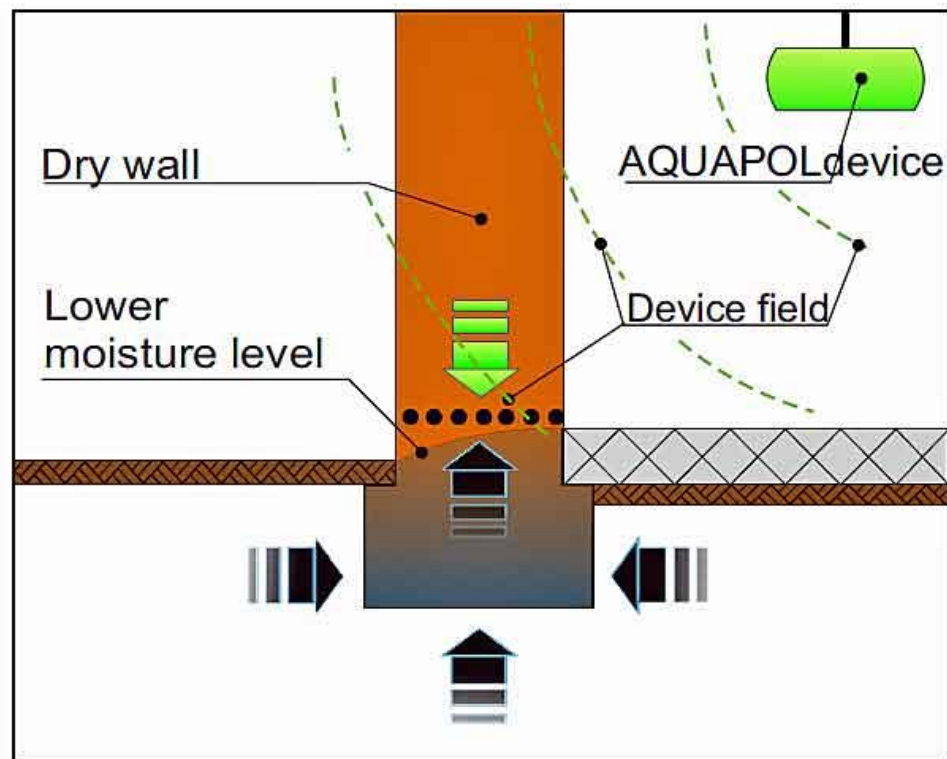
- Moisture ingress from above, indicating the waterproofing is compromised

NOTE: of all the different sources of wall moisture Rising Damp is the one that is most applicable to the Aquapol System and the application for which all installations are guaranteed.

EXAMPLE OF WHAT THE AQUAPOL SYSTEM DOES TO THE RISING DAMP PROBLEM

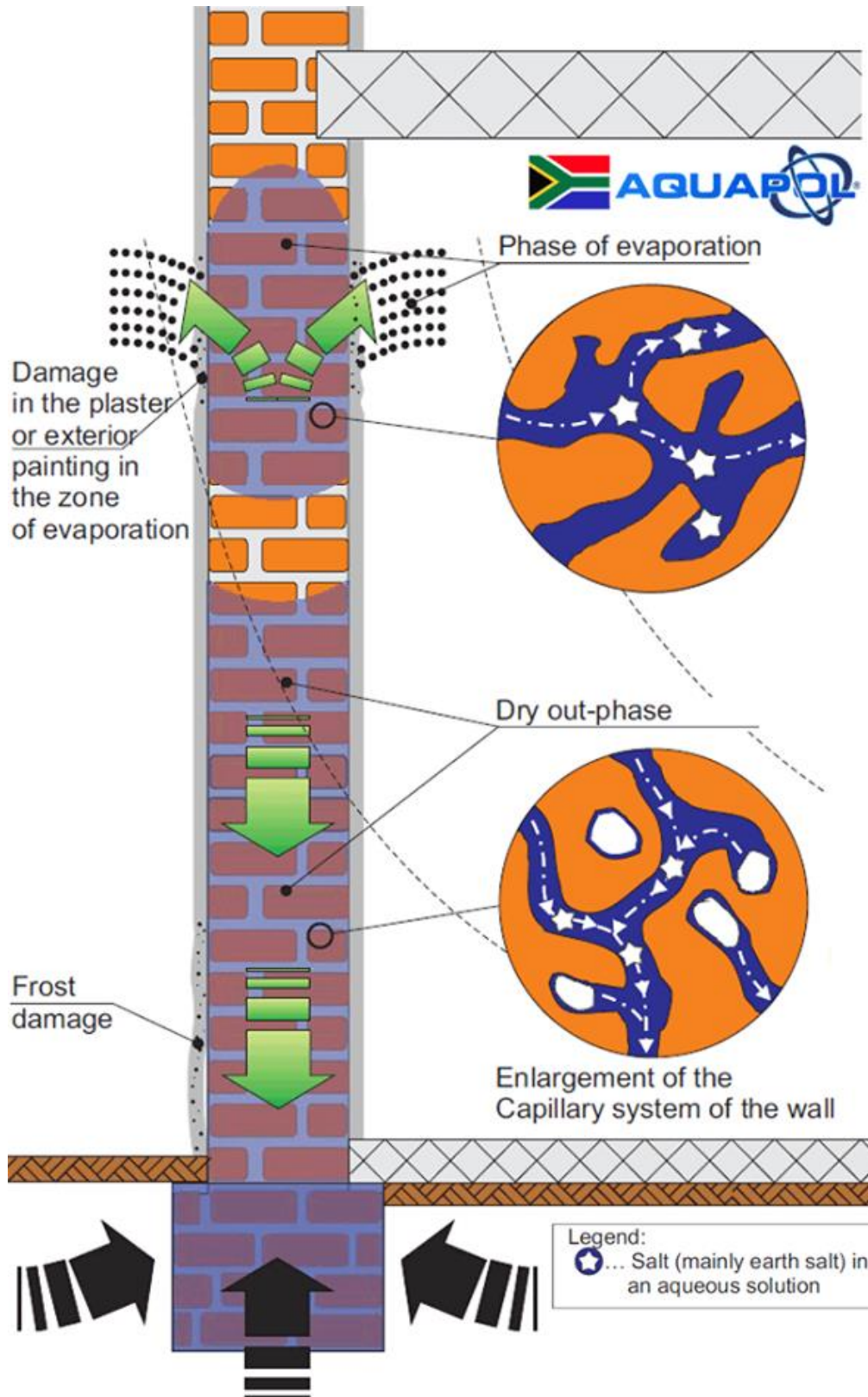


Left: before;
without AQUAPOL



Right: after;
with AQUAPOL

THE AQUAPOL SYSTEM: EVAPORATION PHASE AND DRY-OUT PHASE



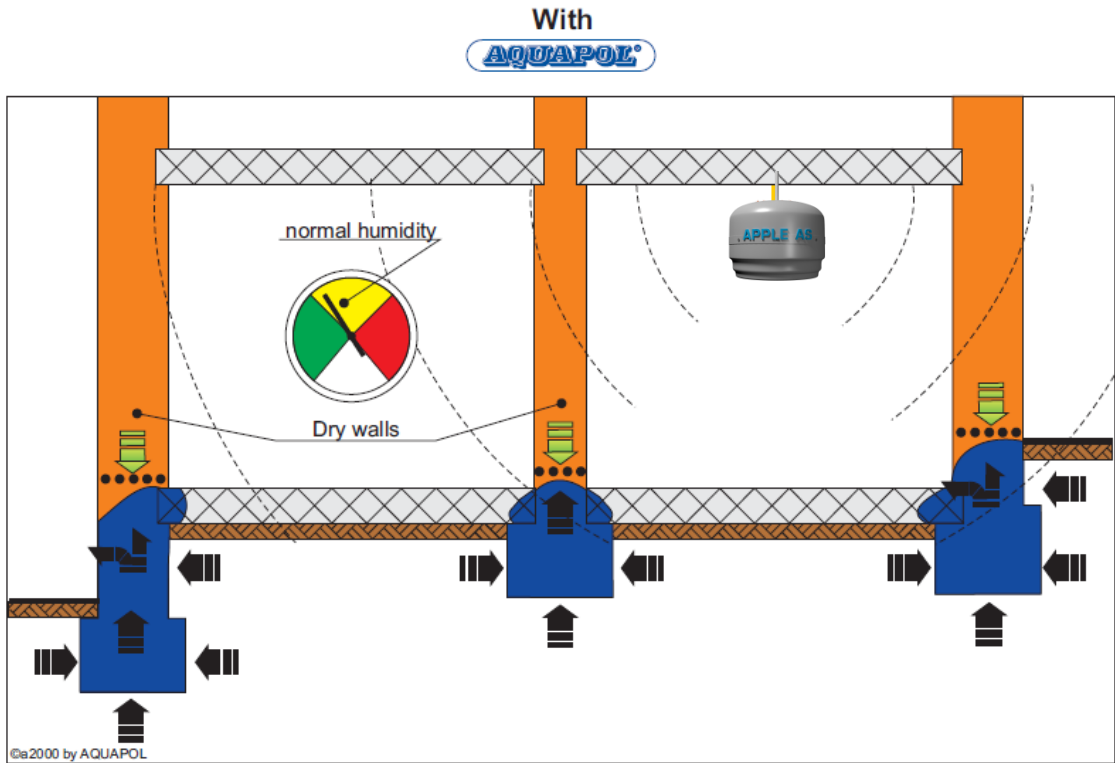
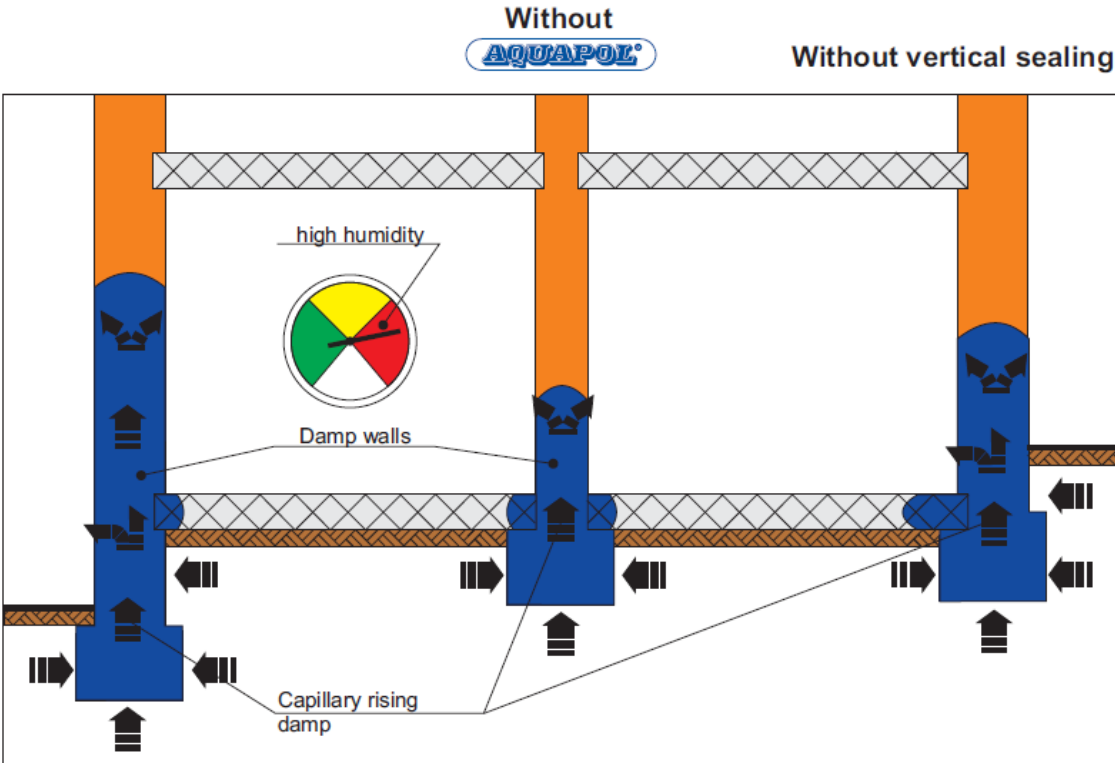
Phase of Evaporation:

Takes place in the upper region of the wall. Salt, in an aqueous solution moves through the capillary system of the wall to the plaster zone. The Evaporation Phase takes 3-12 months. The old plaster becomes a salt victim. Blocking plaster inhibits the evaporation phase and is highly recommended it be removed.

Dry out Phase:

Takes place in the lower region of the wall. Salt in an aqueous solution drifts through the capillary system back to the ground. The Dry out Phase takes place as a rule within 12-36 months.

EXAMPLE OF WHAT THE AQUAPOL SYSTEM DOES TO THE LATERAL [SIDEWAYS] MOISTURE PROBLEM



CONCLUSION

After assessing the Castle of Good Hope it has been ascertained that it is experiencing rising damp as well as moisture ingress from above. For the Rising Damp we highly recommend the Aquapol System be installed as it is the only system that will permanently eradicate the problem and prevent it from recurring in the future. This needs to be addressed as a matter of urgency as the problems will worsen if left unattended to.

Note: as a reminder, should you wish to move forward with the Aquapol System it is highly recommended that you wait for at least one year before attempting any remedial work due to the Evaporation Phase that occurs between the first 3-12 months after installation. We will come 8-12 months later after the installation to do an assessment and advise you accordingly.

The Aquapol System offers a hassle-free installation and due to its permanence is extremely cost-efficient. Once installed and fully functional, and current related damages repaired, maintenance of walls of the building will reduce to almost zero.



The Aquapol system is a "gentle" procedure that mimics nature. It requires no massive interventions into masonry. The procedure is ideal for the preservation of monuments and for all kinds of masonry. It leaves the building structure alone while specifically addressing the problem of rising masonry moisture.