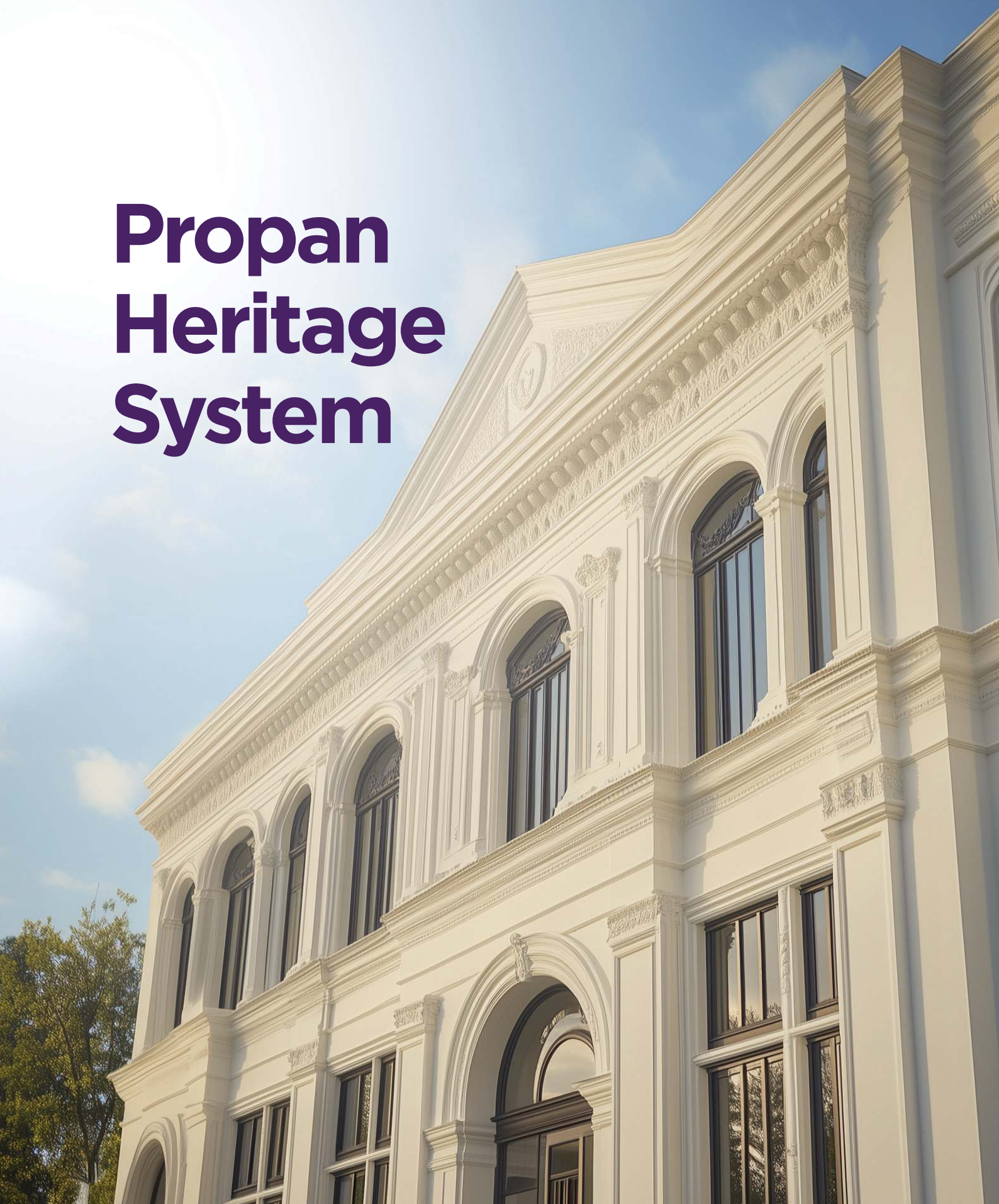


Propan Heritage System



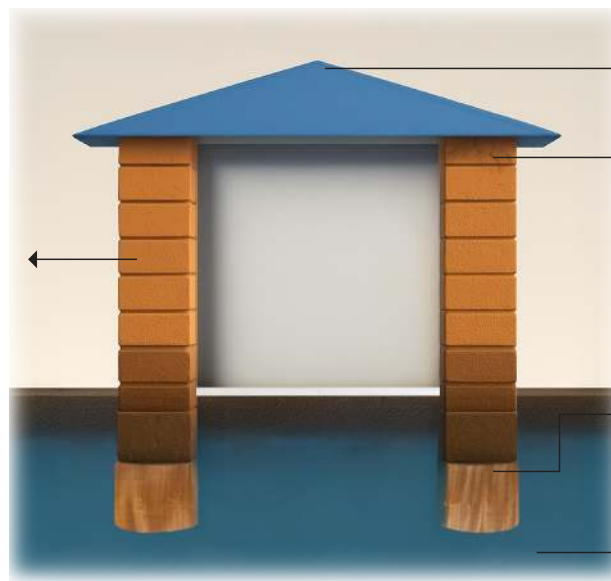
Why do Heritage Buildings need Propan Heritage System?

Cultural heritage is a building, structure, site, and area that has important value for history, knowledge, religion and culture. Cultural heritage buildings such as temples, palaces, forts, houses of worship and colonial buildings are part of the cultural wealth that needs to be preserved so that they are not lost. A long with the time, heritage buildings experience several problems caused by weathering due to age, less maintenance, changes in building function, environmental and weather changes, as well as rising sea levels, these factor resulting damage to cultural heritage buildings.

Problem on Heritage Buildings

Porous wall material

Some cultural heritage buildings constructed before the 1900s, have not used cement and the plaster material normally consists of lime, brick dust, and sand. This material is highly porous and absorbs water.



Roof damage

Allows rainwater easier to enter the building

Weathering of walls and peeling of paint layers

Allows rainwater easier to enter the building

The foundation of the cultural heritage building still uses "Cerucuk" system

(mainly use wood material) and have not yet use concrete

Thus it increases water capillarity

Rising ground water levels

Increase the capillarity of groundwater into the wall

Problems That Occur Due to Humidity



Weathering of building walls



Fungal growth



Peeling paint



Chapel of Santa Maria School, Jakarta (2021)

Propan Heritage System as a Solution

Propan Raya Laboratory has successfully developed **Propan Heritage System**, which is a product system specially formulated with selected mineral materials with the purpose of restoring the function, beauty and extending the life of cultural heritage buildings.

Propan Heritage System consists of :

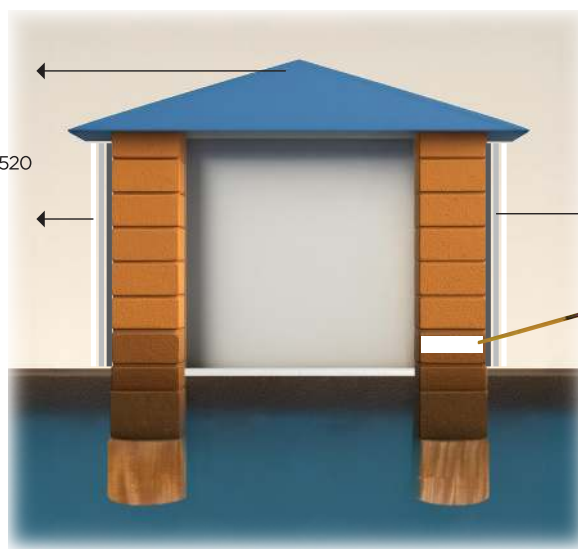
- **Decor Breathable Plaster RP-523**
- **Decor Breathable Skimcoat RS-522**
- **Decor Silicate Paint DSE-520**

Propan Heritage System is an innovation from Propan Raya consist of plastering, skimcoat and paint with breathable technology, as a solution of cultural heritage buildings problems that have high humidity, **Propan Heritage System** are able to help water vapor release from inside the walls, reduce groundwater capillarization and rainwater infiltration into the walls.

Solutions to the problems of cultural heritage buildings

4. Repair roof damage and leaks

3. Apply Decor Silicate Paint DSE-520 (breathable paint)



2. Replace the old plaster and wall skimcoat with Decor Restoration Plaster RP-523 & Decor Restoration Skimcoat RS-522

1. Block the path of moisture with injection damp proofing (especially at extreme groundwater capillarity levels)

Decor Restoration Plaster RP-523

Breathable Plaster for Heritage Buildings



Breathable Reduce Wall Moisture	Low Water Absorption Does not increase humidity	Porous Material Prevents efflorescence	Reducing Wall Humidity Keeps walls dry	100% Inorganic Weather & UV resistant
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Decor Restoration Plaster RP-523 is a breathable light weight plaster made from porous materials and nano technology to enhance hydrophobic properties for heritage buildings and modern buildings.

The following image shows the difference of breathable ability between regular plaster and Decor Restoration Plaster RP-523



Decor Restoration Plaster RP-523



Regular Plaster

Decor Restoration Plaster RP-523 is formulated with porous materials that create space for moisture to release from the wall. Meanwhile regular plaster traps moisture inside.

The following image shows the difference in water absorption between regular plaster and Decor Restoration Plaster RP-523



Decor Restoration Plaster RP-523



Regular Plaster

Decor Restoration Plaster RP-523 is equipped with nanosilica technology, so that it has a low water absorption rate. In contrast, regular plaster has a high water absorption rate.

Results of plaster moisture and efflorescence tests

Test Item	Propan Restoration Plaster RP-523	Another Breathable Plaster	Ordinary Plaster
Initial	 Humidity = 8 %	 Humidity = 9 %	 Humidity = 9 %
1st Month	 Humidity = 12 %	 Humidity = 9 %	 Humidity = 50 %
3rd Month	 Humidity = 13 %	 Humidity = 14 %	 Humidity = 45 %

*each of sample are immersed in salt water

Product Data

Type	Plaster mortar
Appearance	Grey powder
Density	0,961 ± 0,02 g/cm ³
Packaging	18 kg/sack
Recommendation Application	25 - 30° C, 40 - 60% RH
Application Method	Trowel
Mixing Ratio	RP-523 : water = 100 : 20 - 25
Material Consumption	19 - 20 kg/m ² (thickness 10 mm)

Decor Restoration Skimcoat RS-522

Breathable Skimcoat for Cultural Heritage Buildings



Breathable Stable humidity	Low Water Capillary Does not increase humidity	Smoothen the Plaster Surface Flat wall surface	Reducing Wall Humidity Keeps walls dry	100% Inorganic Weather & UV resistant
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Decor Restoration Skimcoat RS-522 is a breathable light weight skimcoat made from a mixture of dry mortar, fine porous materials and nano technology modification to increase hydrophobic properties and smoothen the surface of Decor Restoration Plaster RP-523.

The following image shows the difference in breathability between regular skimcoat and Decor Restoration Skimcoat RS-522



Decor Restoration Skimcoat RS-522

Regular Skimcoat

Decor Restoration Skimcoat RS-522 is formulated with porous materials that create space for moisture to release from the wall. Meanwhile regular skimcoat traps moisture inside the wall.

The following image shows the difference in water absorption between regular skimcoat and Decor Restoration Skimcoat RS-522.



Decor Restoration Skimcoat RS-522

Regular Skimcoat

Decor Restoration Skimcoat RS-522 is equipped with nanosilica technology, so that it has a low water absorption rate. In contrast, regular skimcoat has a high water absorption rate.

Results of plaster moisture and effloresnce tests

Test Item	Propan Restoration Skimcoat RS-522	Another Breathable Skimcoat	Ordinary Skimcoat
Initial	 Humidity = 8 %	 Humidity = 12 %	 Humidity = 10 %
1st Month	 Humidity = 11 %	 Humidity = 55 %	 Humidity = 40 %
3rd Month	 Humidity = 12 %	 Humidity = 50 %	 Humidity = 50 %

*each of sample are immersed in salt water

Product Data

Type	Skimcoat
Appearance	White powder
Density	1,056 ± 0,02 g/cm ³
Packaging	20 kg/sack
Recommendation Application	25 - 30° C, 40 - 60% RH
Application Method	Spatula/scrapper
Mixing Ratio	RS-522 : water = 100 : 20 - 25
Material Consumption	4 kg/m ² (thickness 2 mm)

Decor Silicate Paint DSE-520

Breathable Mineral Paint



Breathable Stable humidity	Moisture Resistant No Chalking	Weatherproof For exterior	Not Burned Safe from fire	No Mold & Mildew Clean and Beautiful
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DECOR Sate Paint DSE 520 is a ready-to-use silicate paint made from potassium silicate emulsion (water glass), inorganic color pigments and special fillers. Through unique penetration and chemical bonding with the mineral material from the wall, it strengthens the wall surface, provides weather resistance and high water vapor permeable, also providing good protection for cultural heritage buildings and modern buildings in the long term.

How does Decor Silicate Paint work?



Acrylic Emulsion Paint

Regular acrylic emulsion paint does not release the bubble (cannot breathe) because it forms a dense and waterproof film layer so that the paint layer is at risk of bubbles forming, chalking, peeling & the paint becoming damaged.



Decor Silicate Paint DSE - 520

Decor Silicate Paint release the bubbles, which means it has excellent water evaporation (breathability). This paint is also able penetrate in to the walls.

Silicification reaction

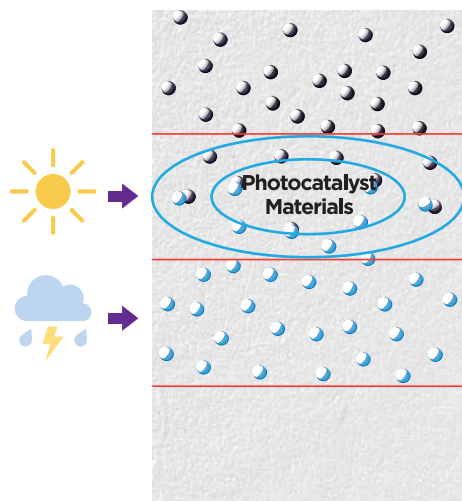


The silicification side reaction forms potassium hydroxide, a compound that is base (high pH level) and prevents the growth of mold and mildew.

Photocatalytic silicate emulsion

Decor Silicate Paint DSE-520 contains photocatalyst material which function to keep the paint film surface clean from dirt and microorganisms. When this photocatalyst material absorbs ultraviolet (UV) radiation from sunlight, it will produce a strong oxidizing agent to break down organic materials, dirts, microorganisms that stick to the surface of the paint film into carbon dioxide and water so that the paint film is kept clean.

How photocatalytic silicate emulsion works



Organic compounds, impurities & microorganisms are deposited on the walls

Photocatalyst materials absorb UV and produce oxidative radicals that effectively break down organic compounds, dirts & microorganisms on the paint surface.

When rain, rainwater will rinse and celan dirts from the paint film surface.

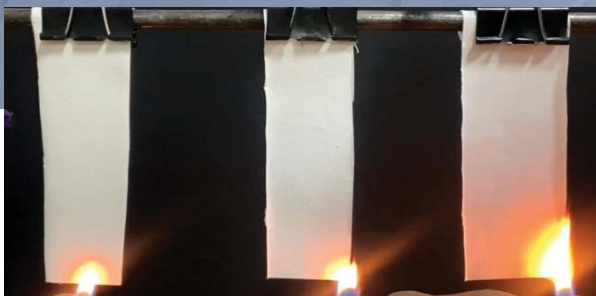
Wall become clean and free from dirts.



Masjid Agung Surakarta (2025)

Flame Test Decor Silicate Paint DSE-520

Decor Silicate Paint DSE-520 is made from inorganic materials, which creates the characteristics of a less flammable paint. Unlike ordinary acrylic paint which contains flammable organic materials,



DSE-520

Acrylic Emulsion

No Coating



DSE-520

Acrylic Emulsion

No Coating

Data Produk

Type	Silicate Emulsion
Color	See Color Card
pH	11 - 13
Packaging	25 kg
Recoating time	Min 12 hours
Gloss level (sudut 85°)	Matt
Storage time	6 months, if keep under cool, clean area and not original seal packing
Recommendations of substrate	mineral coats (Inorganic skimcoat/cement)
Recommended painting conditions	25 - 35° C ; 60 - 80 %RH
Thinning / Dilution	If needed, add 10% Decor Penetran Silicate PS-521
Theoretical Coverage:	
Decor Penetran Silicate PS-521	8 - 12 m ² /lt (1 coat)
Decor Silicate Paint DSE-520	3 - 4 m ² /kg (2 - 3 x 30 micron)

Application Step

1. Clean the wall surface from dirt, dust, grease and any contamination.
2. Clean moss and mold using Propan Fungicidal Wash.
3. Apply Decor Restoration Plaster RP-523 with a thickness of 2-2.5 cm. Allow the plaster to dry for at least 3-4 weeks.
4. Apply Decor Restoration Skimcoat RS-522 with a thickness of 1-2 mm. Allow the skimcoat to dry for at least 7 days.
5. Apply Decor Penetran Silicate PS-521 base coat, 1 coat, without thinning, using a roller. Let this base coat dry for at least 4 hours.
6. Apply 2-3 coats of Decor Silicate Paint DSE-520 (if necessary, dilute with 10% Decor Penetran Silicate PS-521, do not dilute with water) using a roller. The painting interval is at least 12 hours.

Additional information

1. Decor Silicate Paint must be applied directly onto the surface of walls, concrete, or cement plaster.
2. Decor Silicate Paint is made from mineral materials and is only compatible with Decor Penetran Silicate PS-521 base paint.
3. For thinning Decor Silicate Paint, always use Decor Penetran Silicate PS-521. Do not use water.
4. After applying Decor Silicate Paint, let the surface dry (for at least 12 hours) to make it resistant to rainwater abration.
5. Drying time of Decor Restoration Plaster RP-523, Decor Restoration Skimcoat RS-522, Decor Silicate Paint depends on temperature & humidity.



Kerta Niaga Building
Kota Tua - Jakarta (2017)



Museum Seni Rupa dan Keramik
Kota Tua - Jakarta (2018)



Dharma Niaga Building
Kota Tua - Jakarta (2018)



Museum Pendidikan
Surabaya (2019)



Santa Maria School
Jakarta (2021)



Fence on Solo Palace
Central Java (2020)



Padang Merdeka Restaurant
Kota Tua - Jakarta (2017)



Church Blenduk
Semarang (2024)



Katedral Santa Perawan Maria Diangkat ke Surga
Jakarta (2024)



Attaibin Mosque
Senen - Jakarta (2022)



Dasaad Building
Kota Tua - Jakarta (2017)



National Indonesia Building
Gresik (2022)

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