

EARTH COAT

FACADE SYSTEM
INTERIOR WALL SYSTEM



UNDERSTANDING EARTH COAT



PRINCIPLE

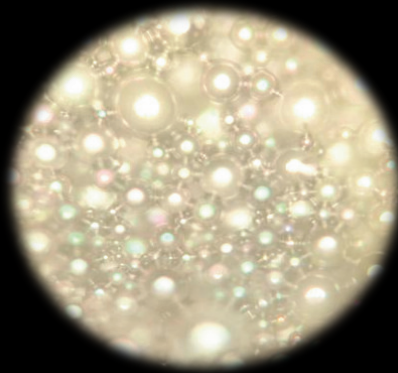
- **Earthcoat thermal insulation** coating is a new-generation insulating coating composed of **water-based resin, Earthcoat particles, and hollow microspheres.**
- The hollow microspheres in EC-I Earthcoat insulation mid-coat contain a **near-vacuum internal structure.**
- Earthcoat particles feature up to **95% porosity with pore sizes below 50 nm** (smaller than the mean free path of molecules).
- This structure makes heat transfer within the coating extremely difficult.

ADVANTAGES

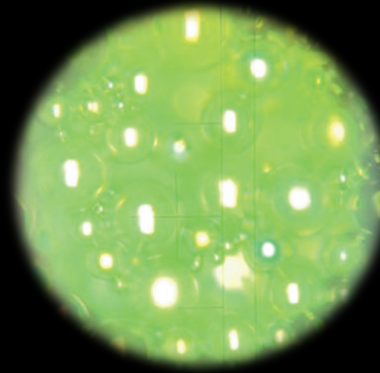
- The coating interface reflects heat and creates **extremely high interfacial thermal resistance.**
- A 2–3 mm coating thickness delivers thermal **insulation performance equivalent to more than 10 times that of conventional insulation materials.**



EARTH COAT INSULATION



**MICROSCOPIC
VIEW DISPLAY**



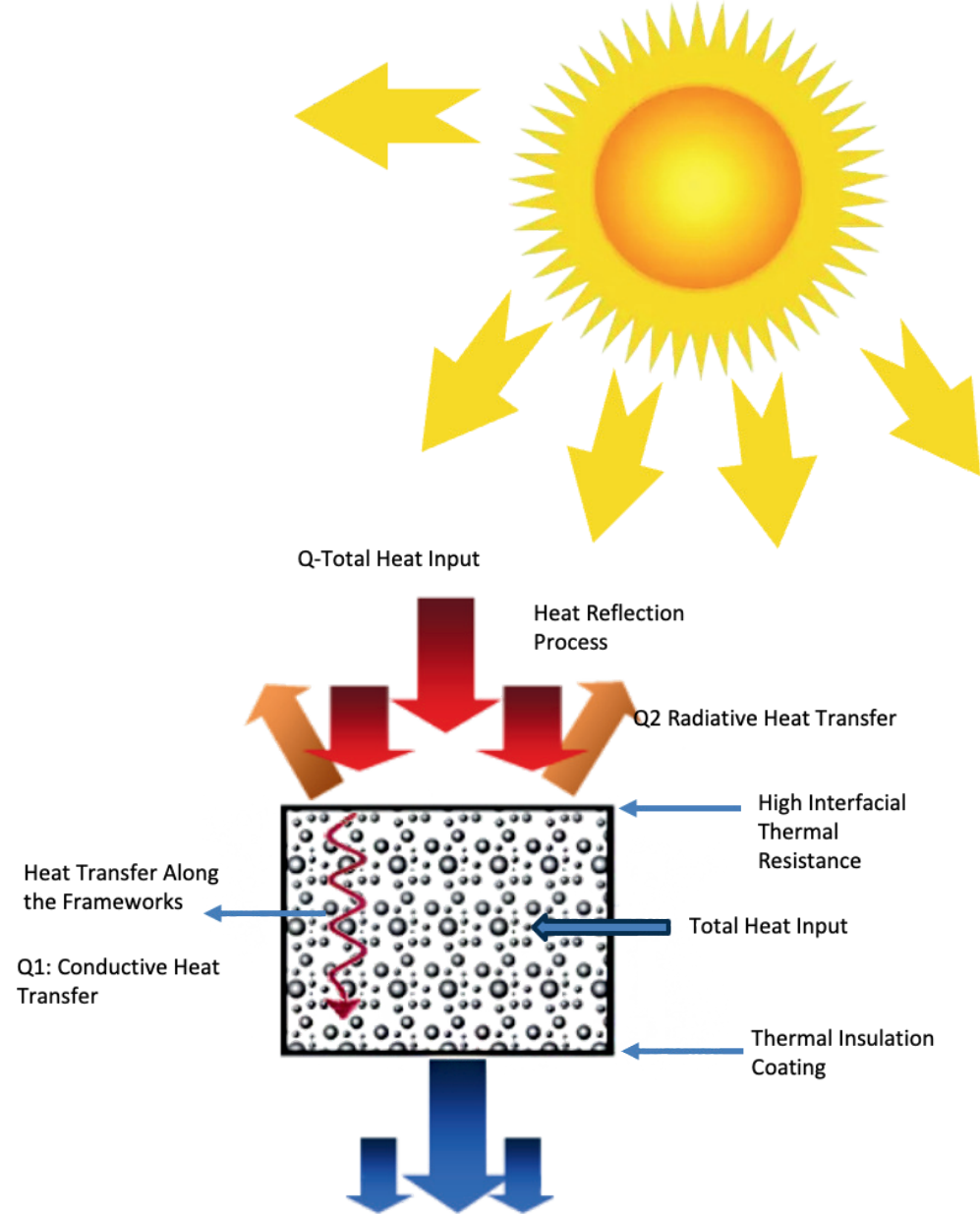
**MICROSCOPIC
EFFECT
DISPLAY**

- **UNDER MICROSCOPIC OBSERVATION, THE PARTICLE STRUCTURE IS EXTREMELY DENSE.**
- **EARTHCOAT AND HOLLOW MICROSPHERES ARE UNIFORMLY DISPERSED WITHIN THE COATING.**
- **THE HOLLOW MICROSPHERES FEATURE A VACUUM STRUCTURE AT THE CORE.**
- **THIS STRUCTURE SIGNIFICANTLY REDUCES THERMAL CONDUCTIVITY.**
- **AS A RESULT, THE INSULATION LAYER DELIVERS EXCELLENT THERMAL INSULATION PERFORMANCE.**

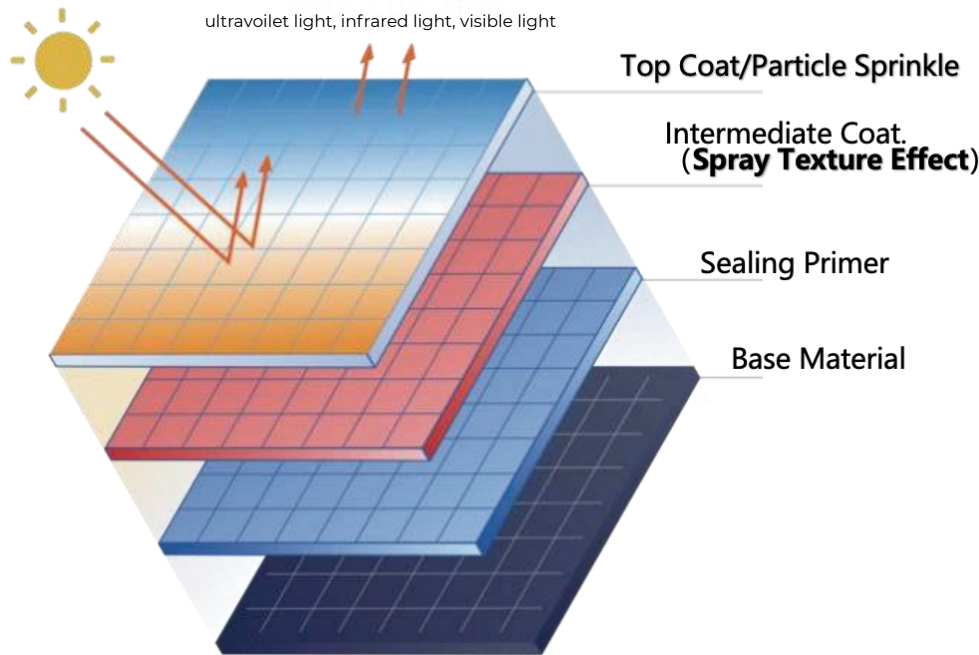
WORKING MECHANISM

LOW THERMAL CONDUCTIVITY + HEAT REFLECTION

- Heat transfer Q from the high-temperature side to the low-temperature side consists of:
 - Q_1 : Conductive Heat Transfer
 - Q_2 : Radiative Heat Transfer
- Due to the high emissivity of the filler, Q_2 contributes significantly more than in conventional materials.
- The internal hollow spherical structure and Earthcoat porous structure:
 - Refract and reflect thermal radiation, reducing radiative heat transfer efficiency.
 - As a result, Q_2 transfer efficiency is extremely low, giving the coating high thermal resistance.



EARTH COAT WALL INSULATION & DECORATION



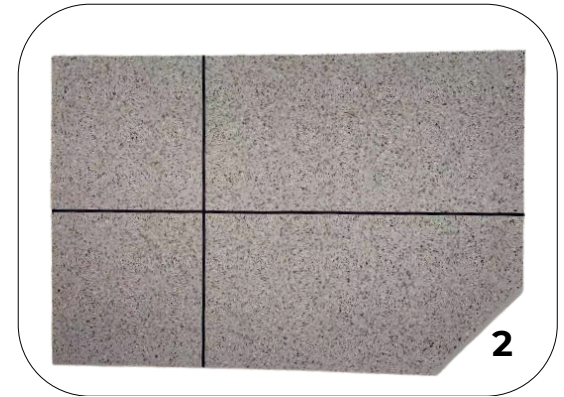
Exterior Wall System – Components

- **Topcoat / Particle Sprinkle:**
 - Replaces natural stone paint / sand-based decorative finish.
 - Significantly reduces finish layer costs.
- **Aerogel Insulating Mid-Coat:**
 - Contains hollow microspheres and aerogel arranged in a specific pattern.
 - Thermal conductivity ~ 0.043 W/m·K.
 - High infrared emissivity in the 8–13 μm atmospheric window.
 - Excellent radiant insulation and very high interfacial thermal resistance.
- **Sealing Primer:**
 - Seals substrate alkalis and other chemicals to prevent bleeding.
 - Ensures strong adhesion between mid-coat and substrate.

STRATEGY TOOLS AND METHODS

EARTH COAT MID-COAT APPLICATION

- EQUIPMENT: AIR COMPRESSOR (AIR PUMP)
- APPLICATION METHOD: SPRAY APPLICATION (GRANULAR TEXTURE FINISH)
- APPLICATION CONDITIONS: DRY WEATHER, TEMPERATURE ABOVE 5 °C
- DRYING: NATURAL DRYING; COATING FULLY CURED WITHIN 24 HOURS
- COATING THICKNESS: 2 MM EARTH COAT THERMAL INSULATION MID-COAT

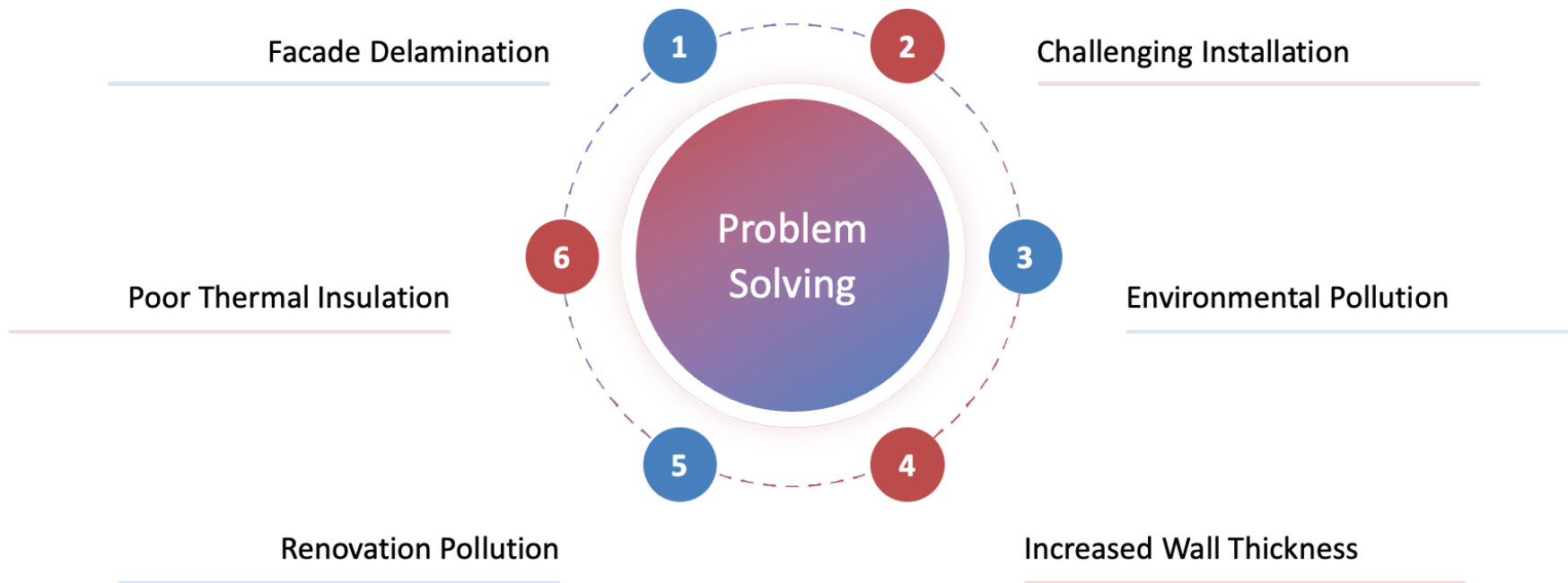


EXTERIOR WALL SYSTEM (STONE-EFFECT FINISH) – APPLICATION PROCESS

- ROLLER APPLY SEALING PRIMER
- APPLY JOINT / GROOVE PAINT
- SPRAY EARTH COAT MID-COAT – FIRST LAYER
- SPRAY EARTH COAT MID-COAT – SECOND LAYER
- ROLLER APPLY MULTICOLOR MID-COAT
- (OPTIONAL: REFLECTIVE THERMAL INSULATION COATING)
- SPRAY WATER-BASED STONE-EFFECT COATING (PARTICLE SPRINKLE)



PROBLEM SOLVING



SOLVES — WALL DETACHMENT / WALL PEELING

- **Very thin application:** The coating thickness is only about 2 mm, much thinner than conventional insulation materials.
- **Extremely lightweight:**
 - Its weight is only 1–5% of traditional insulation materials.
 - Total weight is less than 400 g per square meter, so it adds almost no structural load.
- **Strong adhesion:** The bonding strength exceeds 0.6 MPa, meaning it adheres very well to the substrate.
- **Improved safety and durability**
 - Strong adhesion helps prevent peeling or falling off over time.
 - Being a coating system, it also improves fire safety compared to bulky traditional insulation materials.

EXTERIOR WALL FALLS IN A RESIDENTIAL COMMUNITY
IN HUANGPU, SHANGHAI; PASSING WOMAN KILLED!



SOLVES — INSTALLATION CHALLENGES



1. **Easy Application: Simple Construction Process**
2. **Spray application**
3. **Construction conditions: No-rain weather with temperatures above 5 °C**
4. **Natural drying: Coating is basically fully cured within 24 hours**
5. **EC-I Earth Coat thermal insulation intermediate coating: 2 mm thickness**

1. **Ideal for existing building renovation:** Earth Coat can be applied without altering the existing external wall structure of the building.
2. **No interference with installed equipment:** External fixtures such as air-conditioning units, drainage pipes, and other wall-mounted services do not affect the insulation system or its application.
3. **Seamless spray application:** The overall spray-on process ensures uniform coverage and eliminates thermal bridges.
4. **Efficient construction process:** Shortens construction time and reduces labor costs, making it suitable for large-scale retrofit projects.

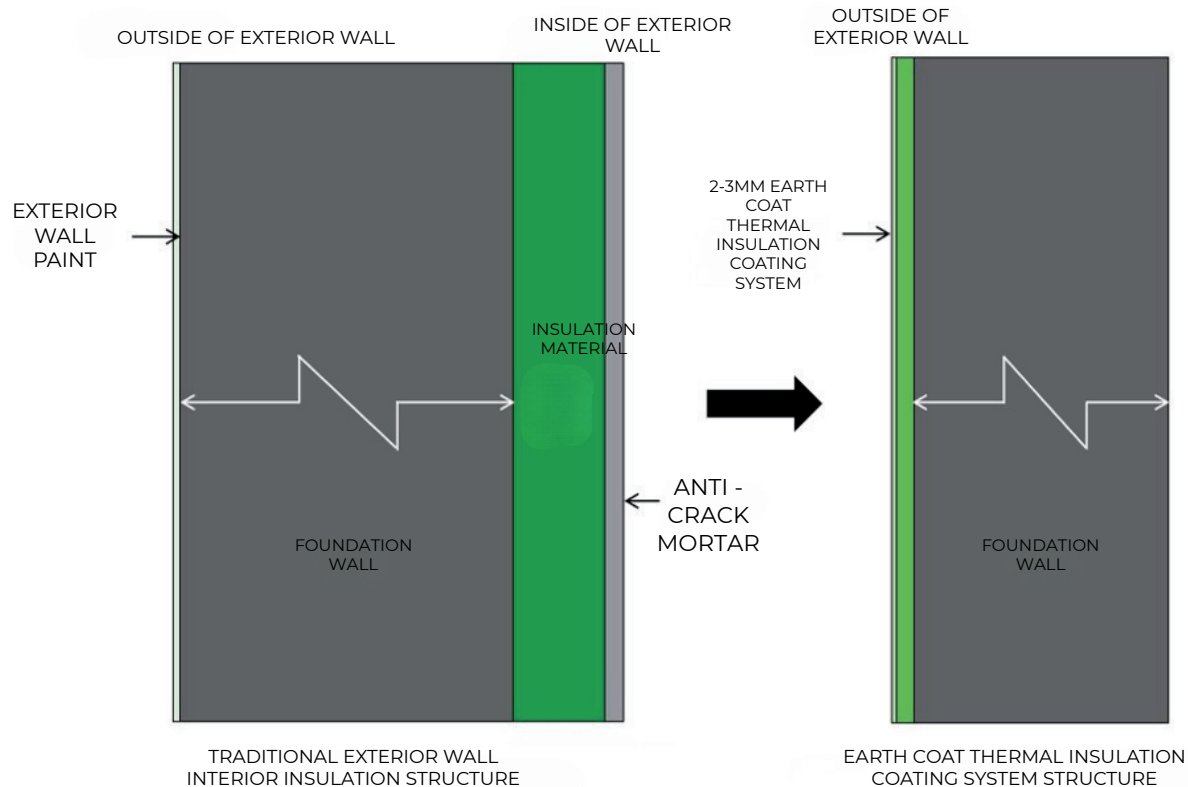
SOLVES — ENVIRONMENTAL POLLUTION

1. **Continuous application without joints:** Earth Coat thermal insulation coating allows seamless, continuous construction, eliminating joints and effectively preventing leakage through gaps.
2. **Simple process with fewer construction steps:** Easy application, fewer procedures, and high construction efficiency.
3. **Short construction cycle & low cost:** Reduced construction time, lower overall project cost, and minimal labor input.
4. **Minimal environmental impact:** Causes limited disturbance to surrounding areas and does not generate large amounts of construction waste.
5. **Ideal for occupied building retrofits:** Especially suitable for existing building renovation projects where construction is carried out while the building remains in operation (“construction while in use”).



SOLVES — INCREASED WALL THICKNESS

- 1. Millimeter-level system thickness:** The total thickness of the Earth Coat thermal insulation coating system is at the millimeter level, with negligible impact on wall thickness.
- 2. Increases usable building area:** Minimal thickness helps maximize actual usable floor area.
- 3. Space-saving solution:** Effectively saves space, making it ideal for both new construction and retrofit projects.



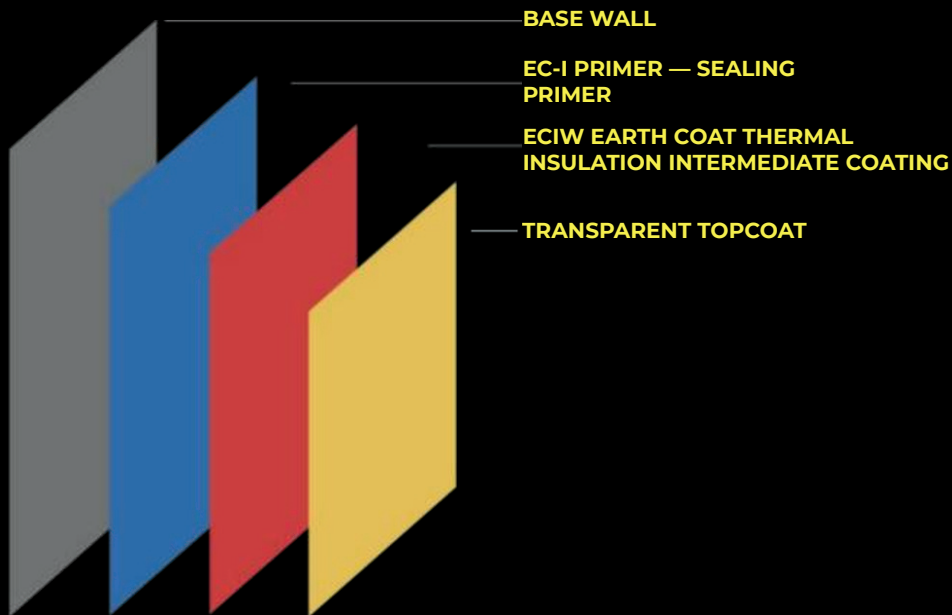
SOLVES —
INADEQUATE
THERMAL
INSULATION

>10°C
TEMPERATURE
DIFFERENCE



RVG

INTERIOR WALL SYSTEM - MULTI FUNCTIONAL COATING



- **EC-I Primer (Sealing Primer)**
 - Seals the alkalinity or other chemical substances in the substrate.
 - Prevents these substances from affecting the finish coat quality.
 - Ensures strong adhesion between the intermediate coating and the substrate.
- **ECIW Earth Coat Thermal Insulation Intermediate Coating:**
 - Contains hollow microspheres arranged in a specific pattern and Earth Coat.
 - Thermal conductivity of approximately 0.043 W/m·K.
 - High emissivity in the 8–13 μm infrared atmospheric window, providing excellent radiative insulation.
- **Transparent Topcoat:**
 - Dirt-resistant and washable, protecting the system surface.



COMFORTABLE EXPERIENCE & ENERGY SAVING

- **Stay Cool in Summer, Warm in Winter:** Effectively blocks summer heat and retains winter warmth, ensuring year-round comfort.
- **Enhanced Comfort & Wellbeing:** Maintains stable indoor temperatures, creating a pleasant living environment.
- **Energy Efficient & Cost Saving:** Reduces reliance on air conditioning and heating systems, cutting energy bills and promoting sustainable living.
- **Smart Thermal Management:** Optimizes building thermal performance, delivering both comfort and eco-friendly efficiency.

PREVENTS BASEMENT CONDENSATION AND MOLD GROWTH

The Relationship Between Basement Condensation & Mold Prevention and Insulation

- Condensation occurs when humid, warm air comes into contact with cold basement walls, especially during the rainy season.
- This can cause traditional wall finishes to crack, blister, or powder over time.
- Prolonged exposure may also lead to mold growth.
- Therefore, insulating the walls is crucial to prevent these issues.





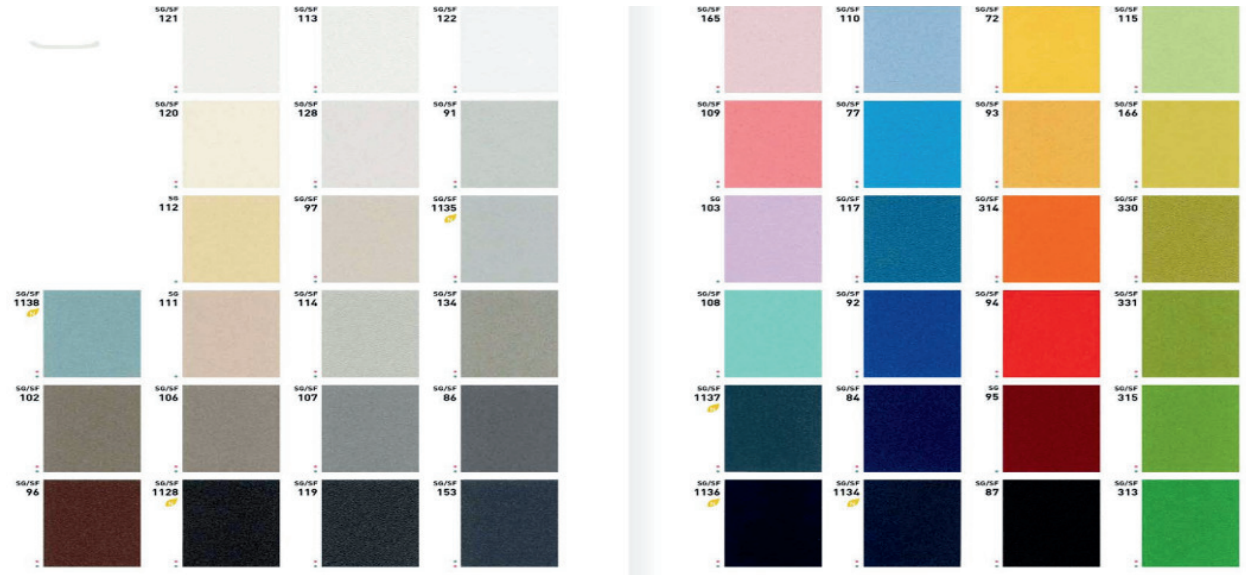
SOLUTIONS FOR CONDENSATION AND MOLD

- **Prevents Condensation at the Source:** EC-1 Earth Coat blocks humid air from reaching cold walls, eliminating the root cause of condensation.
- **Mold-Free Interiors:** Effectively prevents mold growth caused by wall condensation, protecting both walls and occupants.
- **Enhanced Comfort:** Maintains a stable and comfortable indoor temperature, ensuring a pleasant living or working environment.
- **Smart & Efficient Solution:** Combines thermal insulation and moisture control in a single application for hassle-free, long-lasting performance.

CONDENSATION TEST RESULTS

Serial number	Ambient temperature	Ambient humidity	Test plate temperature	Temperature difference	EC-I thermal insulation coating	Latex paint
	°C	%	°C	°C		
1	30	90	18	12	No condensation	There is condensation
2	32	90	18	14	No condensation	There is condensation
3	24	95	18	6	No condensation	There is condensation
4	26	95	18	8	No condensation	There is condensation
5	30	95	18	12	No condensation	There is condensation
6	32	95	18	14	No condensation	There is condensation

EC-I MULTIFUNCTIONAL COATING — CUSTOMIZABLE / PERSONALIZED DESIGN



COMPARISON WITH CONVENTIONAL INTERIOR COATINGS



Product Name	Latex paint	Art Paint	Diatom mud	Earth Coat functional paint
Thermal insulation performance	None	None	None	Yes
Pros:	1. Low production cost, easy replacement, and cost-effective	1. High hardness, anti-scratch, no need to worry about bumps	1. Environmental protection, purify the air, regulate humidity	1. Excellent thermal insulation performance and fire safety
	2. Fast film formation, easy replacement, and easy refurbishment	2. The pattern and texture are realistic, with artistic decorative effects, delicate touch, and soft visual experience	2. Long service life	2. Energy saving and environmental protection, simple construction and long service life
	3. Water-based coatings, high environmental protection, fast volatilization of harmful substances	3. Waterproof, moisture-proof, mildew-proof, stain-resistant and scrubbing-resistant, not easy to peel and crack, and not easy to fade	3. Strong three-dimensional sense, many texture effects to protect vision, and more beautiful quality	3. Anti-condensation, anti-mildew, oil-resistant, stain-resistant, and has good self-cleaning effect
Cons:	1. Humid environment is easy to mold, short life, and contains formaldehyde	1. The price is relatively high, and the manual painting fee is high	1. The price of raw materials and labor costs are relatively high	4. Color variety
	2. Low hardness and not resistant to bumps	2. The construction requirements are high, the process is complex, the construction period is relatively long, and it is difficult to make up for it in the later stage	2. Complex construction, rough surface, poor waterproofing, easy to soften,	Just entered the market, the market awareness is low
	3. Limited water resistance and anti-fouling performance		3. Moisture and powder are easy to hang dust after a long time of use, and cannot be scrubbed with water, making it difficult to take care of	
	4. The effect is single, and it can only be made monochrome			
	5. It cannot highlight the personality and taste of the occupants			



THANK YOU

HOLIDAY INN EXPRESS - INTERIOR WALL & USABLE AREA 5000M²